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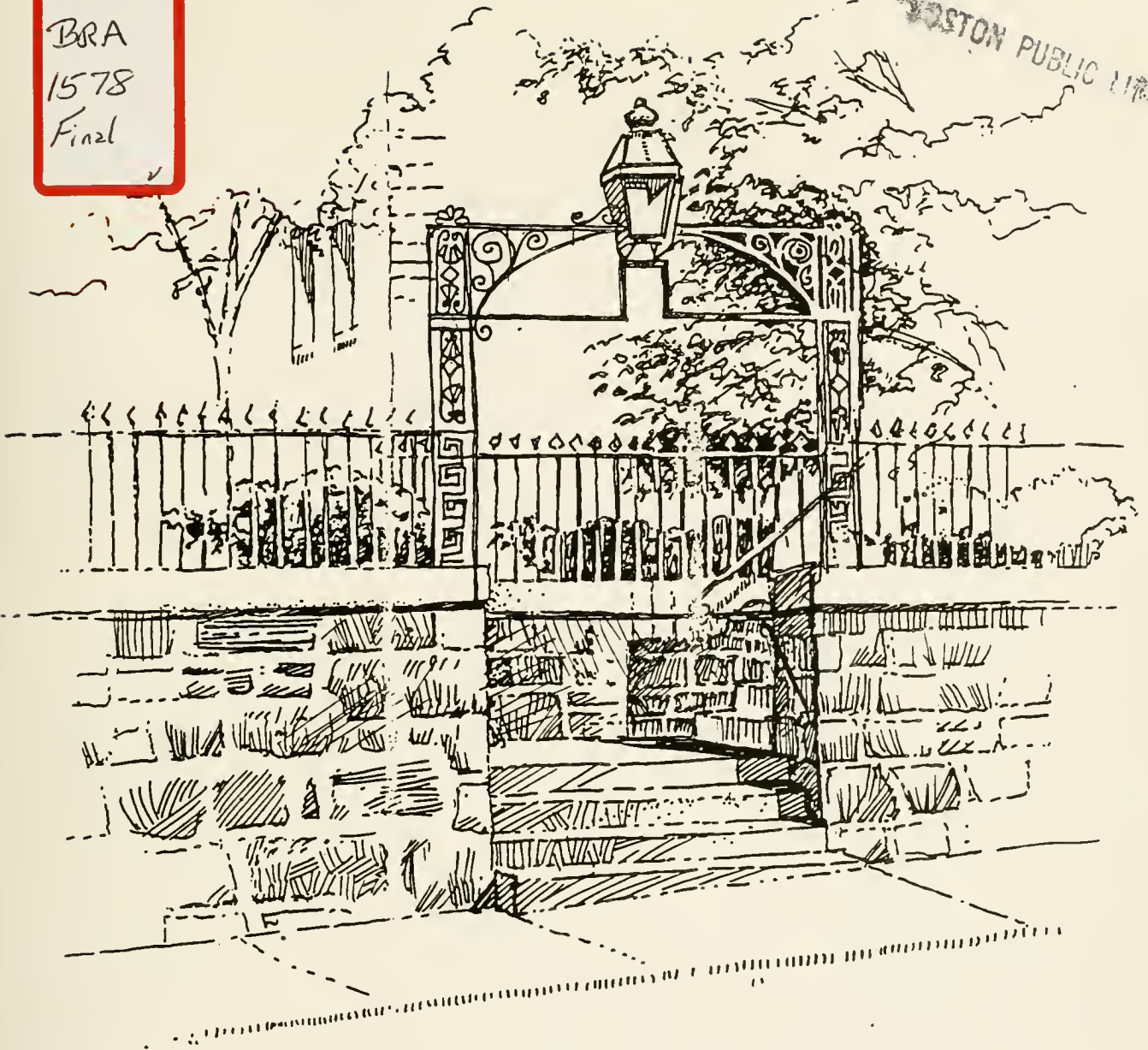
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No. 45 Province Street Boston Massachusetts

Final Project Impact Report

Submitted to:

The Boston Redevelopment Authority
The City of Boston Transportation Department

Submitted by:

The Abbey Group
Bruner/Cott Associates

Submitted on:

May 15, 1989

MEMORANDUM

TO: BOB KROIN
PATRICE TODISCO
ANDY MCCLURG
DICK MERTENS
DAVID CARLSON
JUDY MCDONOUGH

FROM: NANCY TENTINDO

DATE: MAY 8, 1989

SUBJECT: 45 PROVINCE FPIR

Attached please find a Final Project Impact Report for the 45 Province Street project submitted by The Abbey Group on Monday, May 15, 1989.

Please prepare your section of the Final Adequacy Determination by indicating whether the components of the FPIR meet the requirements of the Scope and rectify any inadequacies identified in the Preliminary Adequacy Determination, as follows:

Section 31-6	Transportation	McClurg
Section 31-7	Environmental	Mertens
Section 31-8	Urban Design	Kroin/Todisco
Section 31-9	Historic Preservation	McDonough
Section 31-10	Infrastructure	Carlson

Please return by Monday, June 5.

cc: Bill Whitney
Homer Russell
Kristen McCormack
Chris Grace
Ted Chandler
Juan Carlos Loveluck
Scott Fowler
BRA Library
Denise Breitnecher, BAPCC
Steve Aalto, OJCS

Midtown Cultural District Task Force

文化區工作小組

MEMORANDUM...

May 12, 1989

TO: Members of the Design & Development Committee,
Citizen's Advisory Committee, Visual Arts Committee,
and advocates of Open Space & Historic Preservation

FROM: Judee Shupe, Chair, Design & Development Committee

RE: meeting scheduled for design review of The Abbey Group's
45 Province Street project

WHEN: Friday, May 19 at 9:00 a.m., in the B.R.A. Board Room,
9th floor, Boston City Hall

With a date of May 25 scheduled for B.R.A. Board review of this project, it became necessary to set a date for the MCD Task Force Design & Development Committee's project/design review of this development. I apologize for this late notice and hope that you'll be free to attend.

Chair
Lawrence Murray
ARTS Boston, Inc.
423-4454

Vice-Chair
Bethany Kendall
Downtown Crossing
Association
482-2139

Vice-Chair
Cimatown South Cove
Neighborhood Council
426-6858

Chair, Cultural Facilities
Dona Summers
StageSource
423-2475

Chair, Cultural Trust
Warren E. Smith
Boston Bank of Commerce
423-1010

Chair, Design and Development
Judee Shupe
Janelon Associates
423-0060

Chair, Transportation and Parking
Leonard Concannon
Bacch-Concannon Associates
536-1448

Chair, Visual Arts
Lloyd Cansino Held
Boston Visual Artists Union
666-4270

Index

	Section
Introduction.....	1
General Information.....	2
1. Applicant Information	
a. Development Team	
b. Information	
2. Financial Information	
3. Project Area	
4. Public Benefits	
5. Regulatory Controls and Permits	
6. Community Groups	
Transportation Component.....	3
Environmental Component.....	4
1. Wind	
2. Shadow	
3. Air Quality	
4. Geotechnical Impact	
5. Noise	
6. Construction Impacts	
7. Rodent Control	
IV. Urban Design Component	
1. Program Elements.....	5
2. Photographs.....	6
3. Plans, Elevations, Sketches.....	7
4. Schedule.....	8
V. Historic Resources Component.....	9
VI. Infrastructure Systems Component	10

The Midtown Cultural District Zoning Plan

The Abbey Group proposes to build a first-class office building with street level retail and an underground parking facility on a site which consists of 13,881 square feet and currently supports an obsolete mechanical parking garage and a surface parking lot. The site is bounded by Province Street, Bosworth Street, and Chapman Place and lies within an area designated by the city as The Midtown/Cultural District. Recognizing the key objectives as set forth in the "Midtown/Cultural District Plan", The Abbey Group has planned a building which is scaled and designed to be compatible with the surrounding historic structures, enhances the pedestrian experience at the street levels with retail and restaurant uses, connects and promotes long dormant pedestrian routes, and maintains critical parking with minimal impact on the existing transportation systems. The existing mechanical garage and surface parking lot are incompatible with the architecture of the immediate area, and the replacement of this structure with the proposed building will greatly enhance the Province Street environment and will benefit the neighboring property owners, the local businesses, and the general public.

Province Street exists within an area dominated by nineteenth and early twentieth century buildings, many of which are architecturally noteworthy. The Parker House to the rear, the Wesleyan Building on Bromfield Street, the Old City Hall on School Street and The Hutchinson Building on Province Street are just a few of the significant surrounding buildings. A sensitive approach to this area dictates that a new building be created which hides the necessary requirements of a modern office building within an historically sensitive envelope.

Number 45 Province Street will be a stone and brick facade building with various setbacks at the upper levels. An articulated base along Province Street and Bosworth Street will enhance the street level architecture, while ground floor retail and restaurants along with new street lighting and sidewalk paving will create an inviting, lively street level experience. Both Bosworth and Province Street will benefit by the replacement of the "black hole" of the existing garage with dynamic publicly accessible uses. The restoration of the ironwork and historical granite steps of the Province House Steps at the entry to Bosworth Street along with the creation of a small urban park at the termination of Bosworth Street will create a new pedestrian oriented public amenity in this historic area.

The existing garage serves an important purpose as one of the main parking facilities serving the Downtown Crossing district. The excellent accessibility of this site and the critical need for short term parking for downtown crossing makes the preservation of public parking a highly desirable goal for this site. Therefore a publicly accessible, self-parking garage with ±440 spaces will be maintained under the office building and will extend under both Chapman Place and Province Street. All access to and from the garage will be through the ground level of the office building.

No. 45 Province Street will be an important addition to the midtown cultural district. It is a building which is appropriately scaled to its environment. The richly articulated masonry exterior respects the architectural traditions of the neighborhood. While the hidden garage will preserve an important public amenity, it will also generate pedestrian traffic along Province Street and through to the Downtown Crossing shopping areas. The creation of the "Province House Park" will reinforce the historic significance of this area while also providing a welcome pedestrian oasis. These elements, plus the creation of a dynamic, pedestrian oriented ground floor at the base of the building will significantly benefit the neighboring property owners and businesses.

No. 45 Province Street specifically addresses the goals of the "Midtown Cultural District Zoning Plan" as follows.

The Midtown Cultural District Zoning Plan (cont)

1. Creating Cultural Facilities:

In recognition of the City's goal to revitalize the Midtown as a vibrant cultural center, No. 45 Province Street will be creating a comprehensive program of visual art amenities by utilizing art to enhance the public space within and surrounding the building.

2. Rehabilitating Historic Buildings:

The Province House Steps which create a link between Province Street and Bosworth Street will be accurately restored to their original design. These granite and iron steps were originally the garden steps of the royal governors mansion. Between 1679 and 1864 the Province House served as residence to ten Royal Governors. Working with local historians, the developer will provide a plaque or some other appropriate monument to honor this historic location.

3. Building Affordable Housing:

The developer will be providing over \$380,000 in Jobs linkage and Housing linkage contribution grants.

4. Neighborhood Business Opportunities:

The developer will direct a marketing effort which will identify the availability of office and retail space at #45 Province Street to Chinatown and South Cove business establishments. These plus other existing businesses in the entire Midtown Cultural District will be identified as target groups in the early marketing campaign.

5. Active Ground Level and Cultural Uses:

No. 45 Province Street will make a major contribution toward rebuilding the long dormant pedestrian access network in this area. The creation of a public pedestrian park, the provision for active ground level uses along both Bosworth and Province Streets, the maintenance of through access to Chapman Place and the resurfacing and lighting of all pedestrian ways surrounding the building will enliven and encourage active pedestrian use of the area. The public garage which will service business from Tremont Street through to the Downtown Crossing District will further encourage pedestrian activity in the area.

6. Housing Priority Area:

The project site is not within the defined "housing priority areas" and is therefore in harmony with the Zoning Plans goals.

7. Inclusion of Day Care or Family Care Centers:

The developer recognizes the goal of the Midtown Cultural District Plan to provide expanded day care and family care facilities in the district. The developer will create an on-site 4000 square foot child care facility in accordance with the guidelines which will be developed by the BRA.

The Midtown Cultural District Zoning Plan (cont)

8. Uses: The project will comply with the uses as defined in the zoning plan. The building will be used for retail, restaurant, office and parking.
9. Historic Preservation: The project respects in all ways its historic surroundings. The building architecture, although not a replica of the past, recognizes the materials and shapes which characterize this part of the city. Extensive use of brick and limestone, the rich articulation of the ground floor storefronts, the shadow lines and limestone trim that articulate the facade, and the monumental cornice all work in harmony to create a building which comfortably fits into the neighborhood.
10. Design Regulations: No. 45 Province Street has been extensively evaluated by environmental consultants. The effect that this building will have on traffic, wind, shadow, noise, pollutants etc. have been carefully studied. These studies demonstrate that the environmental impacts are insignificant and are far outweighed by the public benefits that will be provided. The urban design objectives which are described in the zoning plan have been met and will be subject to further evaluation by both the BRA and the Civic Design Commission. To date, the project has been well received by preservationists, neighbors, elected officials, and public review agencies.
11. Parking: The existing publicly accessible parking facility provides critical short term parking for the businesses in the area. Preliminary discussion with abutting property owners indicates that the preservation of public parking in this area is vital to the economic stability of the area. The existing facility must be removed both because of its mechanical deterioration and because of its architectural incompatibility with its environment. To create a self-park facility which replaces the existing facility and serves the needs of the proposed office building, the underground portion of the garage must extend under the adjacent streets.
- Many factors indicate that the proposed site is ideal for the creation of an underground garage. The impact on traffic after completion of the garage will be minimal because the new garage will be replacing an existing facility. Disruption of traffic during construction will be minimal because most of the current traffic on Province Street is generated by the existing garage which will be shutting down. Soils conditions at this site are excellent for deep excavations. No major arterial utility conduits are affected by the construction. The abutting property owners support the proposed project because they recognize that the long term benefits they will derive from their proximity to a publicly accessible self-park garage and the environmental benefit they will see by the replacement of the existing building with an office building which is architecturally compatible with the area outweigh the short term negative impact of the construction. At all times during the construction, Province Street will be kept open.

Development Team

Developer

The Abbey Group
575 Boylston Street
Boston, Massachusetts 02116
(617) 266-8860

Robert Epstein, President
David Epstein, Senior Vice-President
John Svenson, Treasurer
Richard Sahakian, Vice-President

Architect

Bruner/Cott & Associates
301 Vassar Street
Cambridge, Massachusetts 02139
(617) 492-8400

Simeon Bruner, Principal
Daniel Colbert, Associate
Lynne Brooks, Project Manager

Attorney

McCormack & Putziger
265 Franklin Street
Boston, Massachusetts, 02110
(617) 439-4100

Myrna Putziger, P.C.

Contractor

Turner Construction Company
855 Boylston Street
Boston, Massachusetts 02116
(617) 247-6400

Charles Buuck, Vice-President
Joe Kilar
Tom Mormino
Steve Goldberg

Transportation Consultant

Vanasse Hangen Brustlin, Inc.
60 Birmingham Parkway
Boston, Massachusetts, 02135
(617) 783-7000

Raymond S. Niedowski, Senior Project Manager
David Bohn

Public Relations

Agnew, Carter, McCarthy, Inc.
One Exeter Plaza
Boston, Massachusetts, 02116
(617) 437-7722

Mara Solomon
Carol Herzberg

Development Team (cont)

Wind Engineer

The Wright Brothers Wind Tunnel
Department of Aeronautics and Astronautics
Room 17-110, M.I.T.
Cambridge, Massachusetts, 02139
(617)253-2270

Frank Durgin, Associate Director

Geotechnical Engineer

McPhail Associates, Inc.
30 Norfolk Street
Cambridge, Massachusetts 02139
(617) 868-1420

Robert E. McPhail, P.E.
Robert Hoyler

Mechanical & Electrical Engineer

Shooshanian Engineering Associates, Inc.
330 Congress Street
Boston, Massachusetts 02210
(617) 426-0110

Arthur Abbood/ Mechanical
David Gardner/Civil

Structural Engineer

Lim Consultants, Inc.
872 Massachusetts Avenue
Cambridge, Massachusetts 02139
(617) 354-0780

Lee Lim

Artist Consultant

David Judelson
Brickbottom Artists Building #B151
One Fitchburg Street
Somerville, Massachusetts 02110
(617)666-2343

Acoustical Consultant

L.G. Copley Associates
P.O. Box 175
21 Webster Street
West Newton, Massachusetts 02165
(617)965-5370

Lawrence Copley

Air Quality Engineer

Tech Environmental, Inc
1601 Trapelo Road
Waltham, Massachusetts, 02154
(617)890-2220

Paul Guldberg

Prior Developments (Boston Area)

COMPLETED ABBEY GROUP DEVELOPMENTS

<u>Property Name and Address</u>	<u>Type of Development</u>	<u>Development Date</u>
Prince School Newbury St., Boston	25,000 Square Feet of Specialty Retail and 36 Luxury Condominiums	July 1987
The Barrett Brighton, MA	Office 30,000 Square Feet	August 1986
Riverside Technology Center Cambridge, MA	130,000 Square Foot Office/R&D Building with Parking Garage	July 1986
The Savin Savin Hill, Boston	Condominium	April 1984
The Richards Dorchester, MA	Condominium	March 1984
Pinckney Place Beacon Hill, Boston	Luxury Condominiums	October 1983
575 Boylston St. Boston, MA	Retail & Office 38,000 Square Feet	April 1982
275/277 Beacon St. Back Bay, Boston	Luxury Condominiums	March 1982
308 Boylston St. Back Bay, Boston	Retail & Office	October 1981
3 Marlborough St. Back Bay, Boston	Luxury Condominiums	May 1981
407 Marlborough St. Back Bay, Boston	Luxury Condominiums	March 1981
283/285 Beacon St. Back Bay, Boston	Luxury Condominiums	January 1981
258,272 Marlborough St. Back Bay, Boston	Luxury Condominiums	April 1980
155 Beacon St. Back Bay, Boston	Luxury Condominiums	September 1979
160 Newbury St. Back Bay, Boston	Retail & Apartments	September 1979
179 Beacon St. Back Bay	Luxury Condominiums	July 1979

Legal Information

There are no legal judgements or actions pending on this property.

There are no outstanding tax arrears on any Boston property owned in part or in whole by any of the owners of the subject property.

The site of the proposed Project is owned in fee by Robert Epstein, David Epstein, and John R. Svenson as Trustees of The Province Street Development Trust under Declaration of Trust dated July 17, 1987, recorded with the Suffolk Registry of Deeds at Book , Page and registered with the Suffolk Registry District of the Land Court as Document No. 427915 (the "Trust"). The Trust is a Massachusetts nominee trust which holds title for the benefit of the principals of The Abbey Group. A Certificate showing title to the site in the Trust is incorporated in this report.

The undertaking of the Project, pursuant to any of the Options, will require the acquisition of the following additional property rights:

1. The discontinuance by the Public Improvements Commission of the public way in subsurface areas beneath the sidewalk of Province Street, Bosworth Street, and Chapman Place in which foundations for the proposed Project would be located;
2. The acquisition from the City of Boston of property rights, by fee or easement, in the portion of Chapman Place owned by the City of Boston to be occupied by such foundations; and
3. The joinder by the owner of The Marliave in a petition to the Public Improvements Commission to make specific repairs to the surface of Bosworth Street in the area between Chapman Place and the Province House Steps in order to create a pedestrian zone with urban park paving and street furniture - see Public Benefits.

The undertaking of either Option A or Option C would require the acquisition of the following further property rights.

- A. The discontinuance by the Public Improvements Commission of the public way in subsurface areas beneath portions of Province Street, Bosworth Street, and Chapman Place in which portions of the parking garage would be located;
- B. The acquisition from the City of Boston of property rights, by fee or easement, in the portion of Chapman Place owned by the City of Boston in which such parking garage would be located; and
- C. The acquisition from the owner of the Parker House Hotel of property rights by fee or easement, in those portions of Chapman Place owned by the Parker House.

Preliminary discussion have been had with the Transportation Liaison Committee of the City of Boston, which will advise the Public Improvements Commission concerning the proposed discontinuances. Similar preliminary contact has been made with representatives of all utility companies having service lines in the streets surrounding the project site.

Similarly, preliminary discussions have been pursued with representatives of The Parker House to outline the need for the acquisition of rights beneath Chapman Place, and the possible pedestrian and vehicular easements in the Project's parking garage for the benefit of the Parker House.

SECTION 48. Every petitioner receiving a certificate of title in pursuance of a decree of registration, and every subsequent purchaser of registered land taking a certificate of title for value and in good faith, shall hold the same free from all encumbrances except those noted on the certificate, and any of the following encumbrances which may be existing:

First, liens, claims or rights arising or existing under the laws or constitution of the United States or the statutes of this commonwealth which are not by law required to appear of record in the registry of deeds in order to be valid against subsequent purchasers or encumbrances of record.

Second, taxes, within two years after they have been committed to the collector.

Third, any highway, town way, or any private way laid out under section twenty-one of chapter eighty-two, if the certificate of title does not state that the boundary of such way has been determined.

Fourth, any lease for a term not exceeding seven years.

Fifth, any liability to assessment for betterments or other statutory liability, except for taxes payable to the commonwealth, which may attach to land in the commonwealth as a lien prior to, or independent of, the recording or registering of any paper; but if there are easements or other rights appurtenant to a parcel of registered land which for any reason have failed to be registered, such easements or rights shall remain so appurtenant notwithstanding such failure, and shall be held to pass with the land until cut off or extinguished by the registration of the servient estate, or in any other manner.

Sixth, liens in favor of the United States for unpaid taxes arising or existing under the Internal Revenue Code of 1954 as amended from time to time and any other federal lien which may be filed in the Commonwealth.

101178

CERTIFICATE OF TITLE

No. 101178

DATE OF REGISTRATION

August 25, 1987

DAVID EPSTEIN ET AL. TRS
Owners

NOTE

This certificate must accompany every instrument relating to this property which is presented at the Registry of Deeds.
If it is lost, a petition for new certificate should be filed at once in the Land Court at Boston.
When a certificate holder files a petition for new certificate the certificate shall be filed in the Land Court if the property goes to heirs or devisees.

Land Court Case No. 10554

PAUL R. TIERNEY, Esquire
Assistant Recorder

REGISTRY DISTRICT
OF SUFFOLK COUNTY
MASSACHUSETTS.

Owner's Duplicate Certificate

8k.501 Pg.178
NO.101178

From Certificate No. 100320 , Originally Registered December 19, 1986

in Registration Book 497 Page 120 for the Registry District of Suffolk County.

THIS IS TO CERTIFY that ROBERT EPSTEIN, DAVID EPSTEIN and JOHN R. SVENSON, TRUSTEES of THE PROVINCE STREET DEVELOPMENT TRUST, under a Declaration of Trust dated July 21, 1987, filed and registered as Document No.427915

are the owners

in fee simple

of that certain parcel of land situated in Boston

in the County of Suffolk and Commonwealth of Massachusetts, situated on Province Street. All of said land is determined by the Court to be located as shown on a plan drawn by George H. Sherman, Surveyor, dated Dec. 6, 1924, as modified and approved by the Court, filed in the Land Registration Office as plan No.10554-A, a copy of a portion of which is filed with Certificate of Title No.18147.

The above described land is subject to certain drainage rights as reserved in a deed by Daniel Safford et al to Minor S. Lincoln, dated July 12, 1833, duly recorded in Book 370, Page 217 so far as in force at date of original decree.

The above described land is also subject to and has the benefit of such easements, if any, as were in force at date of original decree by reason of the existence of the partition wall on the northwesterly side thereof as shown on said plan.

Address of Owners:
575 Boylston Street, Boston, MA 02116

And it is further certified that said land is under the operation and provisions of Chapter 185 of the General Laws and that the title of said

ROBERT EPSTEIN, DAVID EPSTEIN and JOHN R. SVENSON, TRUSTEES, as aforesaid

to said land is registered under said Chapter, subject, however, to any of the encumbrances mentioned in section forty-six of said Chapter, which may be subsisting, and subject also as aforesaid.

Witness, MARILYN M. SULLIVAN, Chief Justice of the Land Court, at Boston, in said County of Suffolk, the twenty-fifth day of August in the year nineteen hundred and eighty-seven at 3 o'clock and 50 minutes in the after noon.

Attest, with the Seal of said Court,

Paul R. Tierney

PAUL R. TIERNEY, ESQ., Assistant Recorder

MEMORANDA OF ENCUMBRANCES ON THE LAND DESCRIBED IN THIS CERTIFICATE

DOCUMENT NUMBER	KIND	RUNNING IN FAVOR OF	TERMS	DATE OF INSTRUMENT	DATE OF REGISTRATION	SIGNATURE OF ACTING ASST. RECORDER	DISCHARGE
415996	Mortgage & Security Agreement	Patriot Bank N.A.	See Document	Dec. 23 '86	1986 D M Y Dec. 24 12 - M		Oct. 2, 1987 Mort. Doc. 415997 discharged by Doc. 429671
415997	Asst. Lease	Patriot Bank N.A.	Asst. of Lease as add'l. security for Mort. Doc. 415996	Dec. 23 '86	1986 D M Y Dec. 24 12 - M		Asst. of Lease as add'l. security for Mort. Doc. 415997, terminated by Doc. 429671
427916	Certificate	Provincia Street Development Trust	Trustee's Certificate (See Doc.)	Aug. 25 '87	1987 D M Y Aug. 25 3 50 PM		
427917	Mortgage & Security Agreement	United States Trust Company	\$10,000,000.-as per note (See Doc.)	Aug. 25 '87	1987 D M Y Aug. 25 3 50 PM		
427918	Asst. Lease & Rents	United States Trust Company	Asst. Lease & Rents as add'l. security for Mort. Doc. 427917	Aug. 25 '87	1987 D M Y Aug. 25 3 50 PM		
427919	Financing Statement	Robert Epstein, David Epstein and John R. Svanson, Trustees Province Street Development Trust (Debtors) United States Trust Company (Secured Party)	See Document	Aug. 25 '87	1987 D M Y Aug. 25 3 50 PM		
429670	Vote	Bank of New England, N.A.	Vote (See Doc.)	Sept. 28 '87	1987 D M Y Oct. 2 1 55 PM	<i>John R. Svanson</i>	

Financial Information

Financially Involved Participants:

PROVINCE STREET DEVELOPMENT TRUST

Robert Epstein, David Epstein, John Svenson Trustees and sole beneficiaries

c/o The Abbey Group

575 Boylston Street

Boston, Massachusetts 02116

Current Banking References

UNITED STATES TRUST COMPANY

30-40 Court Street

Boston, Massachusetts

(617)726-7000

Jack Sidell, Chairman

BOSTON TRADE BANK

10 Post Office Square

Boston, Massachusetts

(617)556-2000

Daniel Ciotti, President

Investment Analysis

Contingency allowance of 6% built into all figures.

Two Year Leaseup Period on Office/Retail

Providence Street
Boston, Massachusetts
Date May/4/89
OPTION A

Office/Garage		Office Component		Garage Component	
		Office Component	Cost/sq.ft.	Garage Component	Cost/space
Building Area	164,000 g.s.f.	164,000 g.s.f.		142,775 sq.ft.	
Storage/Mechanical	10,000 g.s.f.	10,000 g.s.f.		440 spaces	
Structured Parking	142,775 g.s.f.	148,289 sq.ft.		324 sq.ft./space	
Net Rentable Office	148,289 sq.ft.	11,854 sq.ft.			
Net Rentable Retail	11,854 sq.ft.	4,000 sq.ft.			
Day Care	4,000 sq.ft.				
Construction Duration	24 months				
COSTS:					
Aquisition		10,500,000	\$64.02	0	\$0
Site Preparation		500,000	\$3.05	0	
Linkage (present value)	1 %/s.f.	274,699	\$1.67	0	
Finish Construction	98 %/s.f.	17,052,000	\$103.98	0	
Tenant Finishes	30 %/s.f.	3,901,370	\$23.79	0	
Structured Parking	96 %/s.f.	13,706,400		13,706,400	\$31,151
Total Construction		21,728,069	\$132.49		\$31,151
Architectural & Eng.	6.0 %	1,303,684	\$7.95	822,384	\$1,869
Legal, Title, & Closing	2.0 %	644,561	\$3.93	274,128	\$623
Taxes During Constr.	8000 /month	192,000	\$1.17	0	
Permits & Insurance	2.0 %	434,561	\$2.65	274,128	\$623
Developer Overhead	5 %	1,215,144	\$7.41	753,852	\$1,713
Sub-Total		36,018,020	\$219.62	15,830,892	\$35,979
Construction Finance	11.0 %	4,786,460	\$29.19	2,103,778	\$4,781
Const. Finance Fee	1 point	365,245	\$2.23	160,535	\$365
Interim Carry Cost		250,000	\$1.52	0	
Total Development Costs		41,169,725	\$251.03	18,345,206	\$41,694
Broker Commissions	18 % GRI	902,654	\$5.50	0	
Rent-up Losses	100 % vac.	5,054,744	\$30.82	0	
Perm. Finance Fees	1 point	471,271	\$2.87	183,452	\$417
Capitalized Cost		47,598,394	\$290.23	18,528,658	\$42,111
RENTAL INCOME					
Office Space	32 %/s.f./yr.	4,745,248	\$32.00	0	
Retail Space	45 %/s.f./yr.	533,430	\$45.00	0	
Parking (NNN)	325 /space/mc	1,716,000		1,716,000	\$3,900
Day Care	10 %/s.f./mo.	40,000			
Gross Rental Income		5,318,678	\$32.43	1,716,000	\$3,900
Less Vacancy	5 %	263,934	\$1.61	0	
Gross Effective Income		5,054,744	\$30.82	1,716,000	\$3,900
Less Property Taxes	2.15 %	504,247	\$3.07	0	
Less Operating Expense	3.50 %/s.f.	574,000	\$3.50	0	
Management Fee	5 %	252,737		85,800	
Net Operating Income		3,723,759	\$22.71	1,630,200	\$3,705
Capitalization Rate		7.82		8.80	

Office Component		Garage Component	
Office Component	Cost/sq.ft.	Garage Component	Cost/space
164,000 g.s.f.		142,775 sq.ft.	
10,000 g.s.f.		440 spaces	
148,289 sq.ft.		324 sq.ft./space	
11,854 sq.ft.			
4,000 sq.ft.			
10,500,000	\$64.02	0	\$0
500,000	\$3.05	0	
274,699	\$1.67	0	
17,052,000	\$103.98	0	
3,901,370	\$23.79	0	
21,728,069	\$132.49	13,706,400	\$31,151
1,303,684	\$7.95	822,384	\$1,869
644,561	\$3.93	274,128	\$623
192,000	\$1.17	0	
434,561	\$2.65	274,128	\$623
1,215,144	\$7.41	753,852	\$1,713
36,018,020	\$219.62	15,830,892	\$35,979
4,786,460	\$29.19	2,103,778	\$4,781
365,245	\$2.23	160,535	\$365
250,000	\$1.52	0	
41,169,725	\$251.03	18,345,206	\$41,694
902,654	\$5.50	0	
5,054,744	\$30.82	0	
471,271	\$2.87	183,452	\$417
47,598,394	\$290.23	18,528,658	\$42,111
4,745,248	\$32.00	0	
533,430	\$45.00	0	
1,716,000		1,716,000	\$3,900
40,000			
5,318,678	\$32.43	1,716,000	\$3,900
263,934	\$1.61	0	
5,054,744	\$30.82	1,716,000	\$3,900
504,247	\$3.07	0	
574,000	\$3.50	0	
252,737		85,800	
3,723,759	\$22.71	1,630,200	\$3,705
7.82		8.80	

Province Street
Boston, Massachusetts
Date May 14/85

Independent Variables		1	2	3	4	5	6	7	8	9	10	11
percent-->												
Vacancy Factor	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Effective Office Rent	\$/sf/year	32.00	33.60	35.28	37.04	38.90	40.84	42.86	45.03	47.28	49.64	52.12
Effective Retail Rent	\$/sf/year	45.00	47.25	49.61	52.09	54.70	57.43	60.30	63.32	66.49	69.81	73.30
Market Rent - Parking	\$/sqmo	325	341	358	376	395	415	438	457	480	504	529
Market Buildout Allowance	\$/sf/yr	30.00	31.50	33.08	34.73	36.47	38.29	40.20	42.21	44.32	46.54	48.87
Market Leasing Commission	\$/sf/yr	6.00	6.30	6.62	6.95	7.29	7.66	8.04	8.44	8.86	9.31	9.77
Total Space to be renewed, released		0	0	0	37,072	37,072	0	0	0	37,072	37,072	0
Renewed	50 %	0	0	0	0	18,538	0	0	0	18,538	18,538	0
Released	50 %	0	0	0	18,538	18,538	0	0	0	18,538	18,538	0
Renewal Cost	\$10.00 /sf	10	10.50	11.03	11.58	12.16	12.76	13.40	14.07	14.77	15.51	16.29
Rent Loss on Re-leasing	6 mo.	18.00	18.80	17.84	18.52	19.45	20.42	21.44	22.51	23.64	24.82	26.08
Rent Inflation	5 %											
Expense Inflation	5 %											
Real Estate Tax Inflation	2.50 %											
Office Space	148,288 sf											
Retail Space	11,854 sf											
Parking Spaces	440											
Year		1	2	3	4	5	6	7	8	9	10	11
Income												
Potential Office Income	148,288 sf	4,745,248	4,745,248	4,745,248	4,932,240	5,187,898	5,187,898	5,187,898	5,187,898	5,754,309	6,408,356	6,408,356
Potential Retail Income	11,854 sf	533,430	580,102	586,107	617,512	648,387	690,807	714,847	750,590	788,119	827,525	868,901
Day Care Income	4,000 sf	128,000	134,400	141,120	148,178	155,585	163,364	171,532	180,109	189,114	198,570	208,489
Expense Escalation Income		44,580	90,987	139,387	189,786	242,342	297,128	354,243	413,798	475,903	540,874	608,235
Total-->		5,451,258	5,530,737	5,613,842	5,887,716	6,234,212	6,329,195	6,428,521	6,532,394	7,207,445	7,975,126	8,093,991
Less Vacancies												
Net Building Income		272,582	278,537	280,692	294,386	311,711	318,480	321,426	328,820	380,372	398,758	404,700
Parking Revenue (Net)		5,178,676	5,254,200	5,333,148	5,583,330	5,922,502	8,012,738	8,107,095	8,205,775	8,847,073	7,576,389	7,889,291
Net Rental Income		1,718,000	1,801,800	1,891,890	1,988,485	2,085,809	2,190,099	2,299,804	2,414,584	2,535,314	2,682,079	2,795,183
Net Rental Income												
Office and Retail Expenses	Base Year	6,894,676	7,056,000	7,225,039	7,578,615	8,008,310	8,202,835	8,408,699	8,620,359	9,382,387	10,238,449	10,484,475
Operating Expenses	574,501	603,226	633,387	665,056	698,309	733,224	769,866	808,360	848,789	891,239	935,801	982,591
Real Estate Taxes	548,504	562,217	578,272	590,679	605,446	620,582	638,098	651,999	668,299	685,006	702,131	719,685
Day Care Subsidy		88,000	92,400	97,020	101,871	106,985	112,313	117,928	123,825	130,018	136,517	143,343
Management Fee	5 %	344,734	352,800	361,252	378,981	400,416	410,142	420,335	431,018	469,119	511,922	524,224
Total Operating Expenses		1,598,178	1,654,859	1,714,007	1,784,816	1,881,186	1,928,437	1,998,642	2,071,941	2,175,381	2,286,372	2,389,842
Income from Continuing Operations		5,298,500	5,401,141	5,511,033	5,795,198	6,147,124	6,274,398	6,408,056	6,548,418	7,207,008	7,952,077	8,114,832
Leasing Commissions		0	0	0	128,747	135,185	0	0	0	164,316	172,534	0
Tenant Improvements		0	0	0	843,738	875,923	0	0	0	821,569	882,668	0
Rent Loss on Re-leasing		0	0	0	343,326	360,492	0	0	0	438,181	460,090	0
Renewal Cost		0	0	0	214,579	225,308	0	0	0	273,863	287,556	0
Total Leasing Cost		0	0	0	1,330,389	1,396,908	0	0	0	1,697,951	1,782,848	0
Net Operating Income Before Debt Service		5,298,500	5,401,141	5,511,033	4,464,810	4,750,216	6,274,398	6,408,056	6,548,418	5,509,055	8,189,229	8,114,832

Two Year Leaseup Period on Office/Retail

Providence Street
Boston, Massachusetts

Date Dec/12/88
OPTION B

Office/Garage	152,680 g.s.f.	Land Area: 13,881 s.f.
Building Area	10,000 g.s.f.	
Storage/Mechanical	60,200 g.s.f.	120 spaces
Structured Parking	138,800 sq.ft.	502 s./space
Net Rentable Office	13,880 sq.ft.	
Net Rentable Retail	20 months	
Construction Duration		
COSTS:		
Acquisition	10,500,000	
Site Preparation	500,000	
Linkage (present value)	226,112	
Finish Construction	15,942,640	
Tenant Finishes	3,539,400	
Structured Parking	5,177,200	
Total Construction	25,385,352	
Architectural & Eng.	1,523,121	
Legal, Title, & Closing	717,707	
Taxes During Constr.	160,000	
Permits & Insurance	507,707	
Developer Overhead	1,414,694	
Sub-Total	40,208,582	
Construction Finance	11.0 %	
Const. Finance Fee	525,780	
Interim Carry Cost	250,000	
Total Development Costs	45,619,937	
Broker Commissions	866,320	
Rent-up Losses	4,812,890	
Perm. Finance Fees	512,991	
Capitalized Cost	51,812,139	
RENTAL INCOME		
Office Space	32 %/yr.	
Retail Space	45 %/yr.	
Parking (NNN)	350 %/space/m	
Gross Rental Income	5,570,200	
Less Vacancy	5 %	
Gross Effective Income	5,316,890	
Less Property Taxes	2.15 %	
Less Operating Expense	3.50 %/s.f.	
Management Fee	5 %	
Net Operating Income	4,044,052	
Capitalization Rate	7.81	

Office Component	Cost/sq.ft.
152,680 g.s.f.	\$68.77
10,000 g.s.f.	\$3.27
138,800 sq.ft.	\$1.48
13,880 sq.ft.	\$104.42
	\$23.18
5,177,200	\$132.36
20,208,152	\$7.94
500,000	\$4.02
226,112	\$1.05
15,942,640	\$2.65
3,539,400	\$7.40
1,212,489	\$224.19
614,163	\$25.85
160,000	\$2.93
404,163	\$1.64
1,129,948	\$252.96
3,946,191	\$5.67
447,588	\$31.52
250,000	\$2.90
866,320	\$293.06
4,812,890	\$32.00
443,019	\$45.00
44,744,924	\$33.18
5,066,200	\$1.66
253,310	\$31.52
4,812,890	\$3.10
472,614	\$3.50
534,380	\$23.35
240,645	7.97
3,565,252	
	6.77

Garage Component	Cost/space
60,200 sq.ft.	\$0
120 spaces	
502 sq.ft./space	
5,177,200	\$43,143
310,632	\$43,143
103,544	\$2,589
0	\$863
103,544	\$863
284,746	\$2,373
5,979,666	\$49,831
689,385	\$5,745
78,192	\$652
0	
6,997,243	\$58,310
0	
69,972	\$583
7,067,215	\$58,893
0	
0	
504,000	\$4,200
0	\$4,200
504,000	\$4,200
0	
25,200	\$3,990
478,800	
6.77	

Province Street
Boston, Massachusetts
Date Dec /12/88
OPTION B

Independent Variables		Year										
	Percent—>	1	2	3	4	5	6	7	8	9	10	11
Vacancy Factor	5.00%	32.00	33.60	35.28	37.04	38.90	40.84	42.88	45.03	47.28	49.64	52.12
Effective Office Rent	\$/sf/year	45.00	47.25	49.61	52.09	54.70	57.43	60.30	63.32	66.49	69.81	73.30
Effective Retail Rent	\$/sf/year	35.00	36.80	38.68	40.64	42.68	44.79	46.98	49.25	51.60	54.04	56.57
Market Rent - Parking	\$/sp/mo	30.00	31.50	33.08	34.73	36.47	38.29	40.20	42.21	44.32	46.54	48.87
Market Buildout Allowance	\$/sf/yr	5.78	6.05	6.35	6.67	7.00	7.35	7.72	8.10	8.51	8.94	9.38
Market Leasing Commission	\$/sf/yr	0	0	0	0	0	0	0	0	0	0	0
Total Space to be renewed, released		0	0	0	0	0	0	0	0	0	0	0
Renewed	50 %	0	0	0	0	0	0	0	0	0	0	0
Released	50 %	0	0	0	0	0	0	0	0	0	0	0
Renewal Cost	\$8.00 /sf	8.00	8.40	8.82	9.26	9.72	10.21	10.72	11.26	11.82	12.41	13.03
Rent Loss on Re-leasing	3 mos.	0	0	0	0	0	0	0	0	0	0	0
Rent Inflation	5 %	0	0	0	0	0	0	0	0	0	0	0
Expense Inflation	5 %	0	0	0	0	0	0	0	0	0	0	0
Real Estate Tax Inflation	2.50 %	0	0	0	0	0	0	0	0	0	0	0
Office Space	138,800 sf	0	0	0	0	0	0	0	0	0	0	0
Retail Space	13,680 sf	0	0	0	0	0	0	0	0	0	0	0
Parking Spaces	120	0	0	0	0	0	0	0	0	0	0	0
Income												
Potential Office Income	138,800 sf	4,441,600	4,441,600	4,441,600	4,441,600	4,700,208	5,031,745	5,031,745	5,031,745	5,031,745	5,893,339	6,448,013
Potential Retail Income	13,680 sf	824,900	855,830	888,822	923,053	959,205	997,165	1,037,024	1,078,875	1,122,819	1,170,960	1,222,408
Expense Escalation Income		40,808	82,932	127,051	173,048	221,003	271,011	323,165	377,582	434,307	493,506	555,273
Total—>		5,108,808	5,180,362	5,257,272	5,337,699	5,660,418	6,099,922	6,191,934	6,268,183	6,388,871	7,155,805	8,020,693
Less Vacancies												
Net Building Income		255,340	259,018	282,864	288,885	284,021	304,998	309,597	314,409	319,444	357,790	401,035
Parking Revenue (Net)		4,851,467	4,921,344	4,994,409	5,070,814	5,396,395	5,794,328	5,882,337	5,973,773	6,069,427	6,798,014	7,619,659
Net Rental Income		5,040,000	5,290,200	5,555,680	5,833,443	6,128,815	6,432,246	6,755,408	7,091,179	7,444,838	7,811,889	8,200,983
Office and Retail Expenses	Base Year	5,355,467	5,450,544	5,550,089	5,654,257	6,009,010	6,436,172	6,557,745	6,682,952	6,814,085	7,579,884	8,440,821
Operating Expenses	534,380	581,099	589,154	618,612	649,542	692,019	716,120	751,928	789,523	828,999	870,449	913,971
Real Estate Taxes	478,201	490,158	502,410	514,970	527,844	541,041	554,587	568,431	582,641	597,208	612,138	627,441
Management Fee	5 %	267,773	272,527	277,503	282,713	300,450	321,909	327,887	334,148	340,703	378,994	422,031
Total Operating Expenses		1,319,028	1,364,091	1,411,085	1,460,099	1,523,510	1,592,595	1,648,244	1,708,312	1,768,910	1,861,581	1,963,443
Income from Continuing Operations		4,036,439	4,086,453	4,138,983	4,194,157	4,485,500	4,845,578	4,909,501	4,976,840	5,047,155	5,718,303	6,477,178
Leasing Commissions		0	0	0	0	131,275	137,838	0	0	0	167,543	175,921
Tenant Improvements		0	0	0	0	683,722	717,908	0	0	0	872,622	916,253
Rent Loss on Re-leasing		0	0	0	0	182,326	191,442	0	0	0	232,699	244,334
Renewal Cost		0	0	0	0	182,326	191,442	0	0	0	232,699	244,334
Total Leasing Cost		0	0	0	0	1,179,649	1,238,631	0	0	0	1,505,564	1,580,842
Net Operating Income Before Debt Service		4,036,439	4,086,453	4,138,983	4,194,157	3,305,851	3,606,945	4,909,501	4,976,840	5,047,155	4,212,739	4,898,336

Project Area

The land with the buildings thereon situated in Boston, Suffolk County, Massachusetts, being shown on a plan entitled, "Plan of Land in Boston, Mass.", dated March 11, 1982 by George N. Giunta, R.L.S., said Plan being recorded with Suffolk County Registry of Deeds, Book 9924, Page 414, and bounded and described as follows:

SOUTHEASTERLY

by Province Street, Two Hundred Seventy and 24/100 (270.24) feet;

SOUTHWESTERLY

by the middle line of Bosworth Street, Fifty-Seven and 72/100 (52.72) feet;

NORTHWESTERLY

by Chapman Place, Two Hundred Four and 49/100 (204.49) feet;

NORTHEASTERLY

by land now or formerly of G.J. Sherrard Company Thirty-Three and 10/100 (33.10) feet;

NORTHEASTERLY AGAIN

by land now or formerly of G.J. Sherrard Company Sixty-Six and 14/100 (66.14) feet;

NORTHEASTERLY AGAIN

by land now or formerly of G.J. Sherrard Company Sixteen and 13/100 (16.13) feet.

Containing 13,881 square feet.

The above land is composed of six contiguous parcels of land and one-half the fee in Bosworth Street adjacent thereto, one parcel of which is Registered Land under Certificate of Title No. 100320 in Land Registration Book 497, Page 120 and is described as follows:

A certain parcel of land situated in Boston, Suffolk County, Massachusetts, bounded Southeasterly by Province Street, Fifty-Four and 20/100 (54.20) feet;

Southwesterly by Bosworth Street, Twenty-Six and 51/100 (26.51) feet;

Northwesterly Fifty-Five and 16/100 (55.16) feet, the line running through the middle of a 12" wall;

Northeasterly Twenty-Seven and 22/100 (27.22) feet by land now or formerly of the Johnson Realty Company.

All of said boundaries are determined by the Court to be located as shown on a Plan drawn by George H. Sherman, Surveyor, dated December 6, 1924, as modified and approved by the Court, filed in the Land Registration Office as Plan No. 10554-A, a copy of a portion of which is filed with Certificate of Title No. 18147.

Public Benefits

A. Development Impact Contribution

- | | | |
|--------------------------------|--------------|------------------------------|
| 1. Jobs Contribution Grant: | \$64,143.00 | Payable in two installments. |
| 2. Housing Contribution Grant: | \$320,715.00 | Payable over seven years. |

In order to stimulate housing creation and if a specific affordable housing development can be targeted, the developer will offer to pay out the net present value of the Housing Contribution Grant in a period less than the required seven years.

B. Tax revenue

- | | | |
|---------------------------|--------------|----------|
| 1. Existing Tax Payment: | \$93,400.00 | Annually |
| 2. Estimated Tax Payments | \$800,000.00 | Annually |

C. Employment

- | | |
|-----------------------|---|
| 1. Construction Jobs: | The average number of on-site construction workers will be about 75; the peak number during late 1990 and early 1991 will reach 200. |
| 2. Permanent Jobs: | Based on 4.4 workers per 1000 s.f. of office space and 2.75 workers per 1000 s.f. of retail space it is anticipated that the project will house approximately 33 retail and 651 office employees. |

- | | |
|--|---|
| D. Boston Residents Construction Plan: | Turner Construction Company has successfully implemented their Boston Residents' Construction Plan in other projects and will follow their established guidelines as outlined in the attached letter. |
|--|---|

E. Boston Residents Voluntary Employment Plan:

The central location and excellent access to all four major MBTA subway lines will permit easy accessibility to Boston residents. The developer will become a signatory to the Memorandum of Understanding establishing the Boston for Boston program. In accordance with that program, all tenants of 45 Province Street will be made aware of the goals of the Boston for Boston Plan. To assist tenants in meeting the goal of having 50% of the permanent employees in the building be Boston residents, the building owner will distribute a quarterly mailing. This mailing will provide information from the Mayor's Office of Jobs and Community Services and other Boston residents' affirmative action organizations on programs which will help achieve the employment plan's goals.

F. Day Care:

The developer recognizes the goal of the mid-town cultural district plan to provide new day care facilities. The developer will provide an on-site 4000 square foot facility in accordance with the guidelines to be developed by the BRA. This facility exceeds the requirements of the zoning code by over 20% and will service the needs of employees of the building and neighboring businesses as well as the needs of neighboring residents.

Public Benefits (cont)

G. Cultural Benefits:

In recognition of the City's goal to revitalize the Midtown as a vibrant cultural center, No. 45 Province Street will be creating a comprehensive program of visual art amenities. To assist in the identification of opportunities to exhibit and promote public art, the architect and developer will be working with an artist/consultant. As part of the development team, the artist will participate in the development of three programs to help bring visual art to the public.

1. The creation of the Province House Park along with the other exterior public spaces surrounding the building will provide unique opportunities to utilize art to enhance the public space.. Within the park, the creation of new ironwork, park furniture and sidewalk paving will offer opportunities for artistic expression. Working with the artist/ consultant, the developer will explore these and other ways in which to exhibit new art for the public benefit.
2. The developer proposes to commission, through a design competition, an interpretive commemoration of the historic significance of the Province Steps. This commemoration will be funded by a grant of up to \$25,000 from the developer and will be incorporated into the final design of the Province House Park. With contributions from both historians and artists, a meaningful remembrance of this unique part of Boston can be permanently displayed.
3. As a further opportunity for the exhibition of art for public benefit, the developer will be installing significant pieces of art in the public spaces within the building. While many buildings today have elaborate installations of expensive materials, 45 Province Streets' public spaces are designed with an eye toward both architectural detail and for the exhibition of sculpture and paintings.

H. Neighborhood Business Opportunities:

Under the "Neighborhood Business Opportunities" provision of the Midtown Cultural Zoning regulation, the developer will be initiating a marketing plan which targets the neighborhood businesses in Chinatown for opportunities to lease the retail and commercial space in the building. This plan shall conform to the regulations which will be adopted by the Boston Redevelopment Authority to satisfy the "Best Efforts" requirements.

Public Benefits (cont)

I. Public Improvements:

Along with the rich architecture of the building and the pedestrian orientation of the ground floor uses, the developer will be creating a new fully accessible public park. To be known as the Province House Park, the private way at the termination of Bosworth Street and running into the historic Province House Steps will be transformed from a dead-end driveway to a landscaped and lighted public sitting area. Working with local historians, the developer will recognize this historic area and will memorialize this site as the location of the "Province House (1679-1864)," residence for ten Royal Governors.

The developer will commit to provide an on-going program of seasonal plantings for the park.

Substantial portions of the sidewalks along Province Street, Bosworth Street and Chapman Place will be resurfaced, and fitted with lighting and trash receptacles.

The permanent maintenance of the public walkways surrounding the building, including the park, will be managed and paid for by 45 Province Street.

J. Transportation:

1. Parking:

The 440 car underground garage will serve as an important amenity to the local merchants, to the neighboring downtown crossing, and to the midtown theatres. While the use of public transportation will be encouraged as an alternative means of access to the city, the need for public parking for those without access to public transportation is essential to the jeweler's building, the downtown crossing merchants, and to other area businesses. The availability of public parking on a 24 hour basis will encourage evening activity in the district, a necessity for the theatres and restaurants which rely so heavily on evening business.

2. Transportation:

The developer recognizes the need to encourage the use of public transportation and the use of vanpools. As part of the developers Transportation Mitigation Plan several measures will be taken which will provide significant public benefit.

Ridesharing:

Through the use of an on-site transportation coordinator, the developer will provide information and matching services for ridesharing and CARAVAN.

Public Transportation:

The on-site coordinator will distribute information on all forms of public transportation including commuter bus, commuter rail and commuter boat services.

The developer will create a unique T-Pass subsidy program which will, in conjunction with the building employers, offer up to 20% discounts for T-Passes to building employees.

Staggered Hours:

To encourage staggered commuting schedules, the building services will be offered to tenants at no premium cost for an expanded work day from 6 A.M. to 10 P.M..

Turner

October 19, 1988

Province Street Office Building
45 Province Street
Boston, Massachusetts
Contract No. MJ-66

Mr. David Epstein
The Abbey Group
575 Boylston Street
Boston, MA 02116

Re: Boston Residents'
Construction Plan

Dear Mr. Epstein:

Turner Construction Company has long recognized the need to be pro-active in our affirmative action efforts and has established guidelines and an organizational structure to position ourselves as an active participant in both local and national efforts. Pursuant with the above position, we propose the following plan as a mechanism for obtaining the goals outlined in the Mayor's Executive Order dated July 12, 1985, re: Boston Residents' Job Policy.

This plan has been utilized on all of our downtown Boston projects in the past few years. It has helped us increase our percentages as we strive to obtain the goals outlined in the Mayor's Executive Order:

On your 45 Province Street project, Turner's Project Superintendent will be the point person for overall EEO/MBE and local hiring procedures. He will have reporting to him an administrative assistant who will act as the information control center for project compliance monitoring.

In our procurement process, we will specifically require every subcontractor on the project to comply with the stated requirements, both contractually and through a formal operational review process that will evaluate the manning requirements on a subcontract basis.

We will send letters to all applicable trade unions informing them formally of the project requirements. This will be followed by a pre-job conference with the union business agents during which we will review these requirements.

October 19, 1988

The Abbey Group

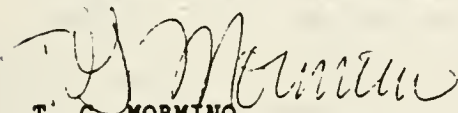
We will establish complete record-keeping procedures and generate manning tables and weekly payroll listings of all residents, minorities and female employees.

Where compliance with the program requirements is not achieved, we will contact the trade unions either directly or through our subcontractors as notification that they are deficient in supplying the necessary manpower to meet the manning requirements.

In the area of MBE subcontracting, our purchasing department, which maintains a continuing evaluation of the subcontract market, will establish a qualified list of minority subcontractors and will evaluate any new applicants.

Very truly yours,

TURNER CONSTRUCTION COMPANY

A handwritten signature in dark ink, appearing to read 'T. G. Mormino', is written over the typed name.

T. G. MORMINO
Deputy Operations Manager

TGM:PMM

Boston Residents
Construction Employment Plan
For
45 Province Streete

WHEREAS, Robert Epstein, David Epstein and John Svensen as Trustees of Province Street Development Trust under Declaration of Trust dated July 17, 1987, recorded with Suffolk Registry of Deeds at Book _____, Page _____ and registered with the Suffolk Registry District of the Land Court as Document No. 427915 (the "Developer") and the Boston Redevelopment Authority (the "Authority") desire to bring the construction employment benefits of the Project, as hereinafter defined, to residents of the City of Boston, minorities, and women;

WHEREAS, Chapter 30 of the Ordinances of 1983 established the Boston Resident Jobs Policy;

WHEREAS, the Mayor's Executive Order of July 12, 1985, entitled "Executive Order Extending the Boston Residents Jobs Policy" requires the Developer to prepare and submit and the Authority to approve a construction employment plan;

WHEREAS, the Boston Employment Commission established by Chapter 12 of the Ordinances of 1986 as amended by Chapter 17 of the Ordinances of 1986 (collectively the "Ordinance") passed by the Boston City Council on July 30, 1986 and August 12, 1986 and signed by the Mayor of the City of Boston, a copy of which is annexed hereto as Exhibit A and incorporated herein by this reference, is responsible for making determinations of compliance with regard to the Boston Residents Construction Employment Plan Standards; and

WHEREAS, the Project constitutes a Covered Project;

NOW, THEREFORE, the Developer, the Authority, the Commission and OJCS agree that the approved construction employment plan (this "Plan") for the Project is as follows:

Section 1: DEFINITIONS

As used in this Plan, the following terms shall have the meanings set forth below. Capitalized terms used in this Plan without definition which are defined in the Ordinance shall have the meanings ascribed to them in the Ordinance.

1.1 Boston Residents Construction Employment Standards: The standards established under the Ordinance and under said July 12, 1985 Executive Order, specifically

- (1) at least fifty percent (50%) of all worker-hours on a craft-by-craft basis shall be worked by Boston Residents;

(2) at least twenty-five percent (25%) of all worker-hours on a craft-by-craft basis shall be worked by Minority Persons;

(3) at least ten percent (10%) of all worker-hours on a craft-by-craft basis shall be worked by women.

1.2 Contractor: The general contractor(s) for the Project engaged from time to time by the Developer, and, where the context requires, any subcontractor thereto.

1.3 On-Site Monitor: an individual employed by the Contractor whose primary responsibility will be (i) to serve as compliance officer on the construction site for the purpose of pursuing on a daily basis the Boston Residents Construction Employment Standards and (ii) the daily implementation of this Plan. As used in paragraphs 3.5 and 3.6 the phrase "On-Site Monitor" shall also include the individual designated by each subcontractor to serve as compliance officer on the construction site for the purpose of pursuing the Boston Residents Construction Employment Standards.

1.4 Project: The construction by the Developer on a parcel of land bounded generally by Province Street, Bosworth Street, and Chapman Place of an office building containing approximately 152,680 square feet with ground floor retail space and below grade parking for approximately 378 cars.

Section II: GENERAL REQUIREMENTS

2.0 Developer shall use Best Efforts to ensure that the Boston Residents Construction Employment Standards are met by its Contractor in constructing the Project.

2.1 The Developer shall designate an individual who shall have among his or her primary responsibilities the management of compliance with the Boston Residents Construction Employment Standards and this Plan.

2.2 The Developer shall incorporate into its construction contract with Contractor and shall require Contractor to incorporate into each of its subcontracts provisions requiring that Contractor and each subcontractor engaged in construction in connection with the Project comply with this Plan. The incorporation by reference of this Plan into any such construction contract or subcontract shall satisfy such obligation.

2.3 Documentation of the Developer's compliance herewith shall be maintained by the Developer; documentation of the Contractor's compliance herewith shall be maintained by the On-Site Monitor. The Developer shall provide copies of such

documentation to OJCS as required herein or as requested from time to time by the Authority, OJCS or the Commission.

- 2.4 The Developer shall cause the Contractor to prepare a projection of work force needs over the course of construction of the Project and to complete the Projected Work Force Form attached hereto as Exhibit B and incorporated herein by this reference. Contractor shall update such projection periodically during the course of construction of the Project, but not more frequently than quarterly. The original projection shall be submitted by the Developer to OJCS no later than two (2) weeks prior to the anticipated start of construction by Contractor, and any updated projection shall be submitted to OJCS within one (1) week of receipt thereof by the developer from the Contractor.
- 2.5 The Commission shall make determinations as to compliance by Developer and Contractor with the Boston Residents Construction Employment Standards at time intervals as set out in one of the following two schedules, whichever allows for more frequent determinations:
 - (1) When the Project is 25, 50, 75 and 100 percent complete, or,
 - (2) Every three months from the date of commencement of construction of the Project.

"Percent complete" shall be measured by the percentage of the total worker hours expected to be worked on the Project as set forth in the projection of work force needs shown on the Projected Work Force Form submitted pursuant to paragraph 2.4.
- 2.5 The Developer shall maintain, and shall cause Contractor to maintain, records necessary to ascertain compliance with this Plan for one (1) year after the issuance of a Certificate of Occupancy for the shell and core of the Project.
- 2.6 The Developer shall meet with the Contractor no less frequently than weekly throughout the period of construction of the Project to review the Contractor's compliance with this Plan and the Boston Residents Construction Employment Standards. The Developer shall record and maintain minutes of such meetings, indicating in detail the substance of discussions concerning the Boston Residents Construction Employment Standards, and shall forward copies thereof to OJCS within ten (10) calendar days of such meetings.
- 2.7 The Developer shall require that the Contractor and each subcontractor designate an individual to serve as compliance officer for the purpose of pursuing the Boston Residents Construction Employment Standards.

Section III: PROCEDURES

- 3.0 The Developer shall furnish to the Authority and OJCS the name, title, business address and telephone number of the person designated as the On-Site Monitor.
- 3.1 Prior to the start of construction, the Developer and the Contractor shall meet with representatives of OJCS for the purpose of discussing and agreeing upon the methods and procedures for the implementation of the provisions of this Plan. Such meeting (the "Pre-Construction Conference") shall be attended by subcontractors to the Contractor then selected, if any, who shall have been notified by mail of the time, place, and purpose of such Pre-Construction Conference at least three (3) business days in advance thereof.
- 3.2 Prior to the start of construction, the Contractor and each subcontractor to the Contractor then selected, if any, shall meet with appropriate representatives of the construction trades unions, OJCS, and the Authority for the purpose of reviewing the Boston Residents Construction Employment Standards and the estimated employment requirements for construction workers over the course of construction of the Project.
- 3.3 Within three (3) business days after the employment or assignment of a worker to work on the Project, the Contractor and each subcontractor will obtain from such worker a completed and signed Residency Verification Form in the form attached hereto as Exhibit C. The Residency Verification Form shall be submitted to OJCS together with the first Weekly Utilization Report on which such worker's employment is first reported. If the Contractor or the subcontractor shall have requested a worker to complete such Residency Verification Form and the worker shall have refused to do so, in lieu of such Residency Verification Form the Contractor or subcontractor shall submit a sworn statement that the worker has been requested to complete and sign such form but has refused.
- 3.4 One week following the commencement of construction of the Project and each week thereafter until such work is completed the On-Site Monitor shall complete and submit to OJCS for the week just ended Weekly Utilization Reports in the form attached hereto as Exhibit D. In lieu of submitting the form attached hereto, the On-Site Monitor may submit payroll records containing the same information as is required on the form attached hereto as Exhibit D.
- 3.5 All persons applying directly to the Contractor or any subcontractor for employment in construction of the Project who are not employed by the person to whom application for employment is made shall be referred by such person to OJCS. The On-Site Monitor shall forward in writing to OJCS, within

two business days of receipt thereof, the names, home addresses and telephone numbers of all persons applying directly to the Contractor or any subcontractor for employment in construction of the Project who are not employed by the person to whom application for employment is made. The On-Site Monitor shall keep a written record of all referrals made to OJCS pursuant to this paragraph 3.5, of any person who was referred to the Contractor or any subcontractor by OJCS but was not hired, and the reasons why any person so referred was not hired. It shall be a sufficient reason for failure to hire any person so applying or referred that employment of such person would not comply with any union security clauses contained in any applicable collective bargaining agreements to which construction of the Project is subject.

- 3.6 Each request for qualified construction workers made by the Contractor or any subcontractor to a union hiring hall, business agent, or contractor's association shall contain a recitation of the Boston Residents Construction Employment Standards in the Form attached hereto as Exhibit E and a request that referrals for construction positions be referred in the same proportion as such Boston Residents Construction Employment Standards; provided, however, that if at the time of any such labor request the requesting party's work force composition falls short of the Boston Residents Construction Employment Standards in any one or more categories, such labor request shall seek referrals in such proportion among such categories as would be necessary to more fully achieve the proportions set forth in the Boston Residents Construction Employment Standards. In the event that the union hiring hall, business agent or contractor's association to whom or which such a request has been made fails to fully comply with such request, the requesting party's On-Site Monitor shall seek written confirmation from the union hiring hall, business agent, or contractor's association that there are insufficient workers in the categories specified in such request then shown on the list of unemployed workers maintained by such union hiring hall, business agent or contractor's association. Copies of any confirmation so obtained shall be submitted promptly to OJCS. Copies of any request for qualified workers made at a time that the requesting party's work force composition falls short of any one or more of the Boston Residents Construction Employment Standards shall be forwarded contemporaneously to the Skills Bank.
- 3.7 Representatives of OJCS may visit periodically the site of the Project during normal working hours to verify the information in the Weekly Utilization Reports, Residency Verification Forms, or other documentation submitted by the Contractor or the Developer. Such representatives shall comply with all safety and site control requirements imposed by the Contractor.

Section IV: DETERMINATION OF COMPLIANCE

- 4.0 Failure by the Developer or the Contractor, as the case may be, as determined by the Commission at the determination intervals set forth in paragraph 2.4 hereof, (i) to comply with this Plan, or (ii) to use Best Efforts in attempting to comply with the Boston Residents Construction Employment Standards, shall constitute non-compliance herewith. Any independent determination by the Authority of non-compliance as herein defined shall be made only after the Authority has held a public hearing upon the issue of such non-compliance, notice of which shall have been given in writing to the Developer and the Contractor at least fourteen (14) days prior to such hearing.

Section V: SANCTIONS

- 5.0 Pursuant to and in accordance with the Ordinance, the Developer shall deposit into the escrow fund established by the Commission pursuant to the Ordinance an amount equal to one tenth of one percent (0.1%) of the total cost of construction as stated in the building permit application for the Project. Such deposit shall be made upon the issuance of a building permit for the Project. Such deposit shall secure the obligation of the Developer to pay, or cause the Contractor to pay, any fines recommended by the Commission by reason of the non-compliance herewith of the Developer or Contractor, as the case may be, and shall be held until the Commission has issued a Certificate of Compliance indicating that the Developer and Contractor has complied with this Plan or have satisfied any fines recommended by the Commission.
- 5.1 All fines recommended by the Commission in accordance with the Ordinance shall be deemed imposed upon the Developer by the Authority in its capacity as the contracting agency within the meaning of the Ordinance.
- 5.2 The Developer and the Contractor shall be subject to such sanctions as are authorized by the Ordinance.

Section VI: MISCELLANEOUS

- 6.0 The provisions of this Plan are severable, and if any shall be held invalid, unconstitutional or otherwise unenforceable by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the remaining provisions.
- 6.1 This Plan shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts.
- 6.2 All notices required or permitted to be given under this Plan shall be in writing signed by duly authorized officers, and

shall be deemed delivered if mailed, postage prepaid, by registered or certified mail, return receipt requested, or delivered by hand to the principal office of the party to which it is directed, which is as follows unless otherwise designated by written notice to the other party:

Developer: Robert Epstein, David Epstein and John Svensen, Trustees
Province Street Development Trust
c/o The Abbey Group
575 Boylston Street
Boston, Massachusetts 02116

Authority: Boston Redevelopment Authority
One City Hall Square, 9th Floor
Boston, Massachusetts 02201
Attention: Director's Office

Commission: Boston Employment Commission
43 Hawkins Street
Boston, Massachusetts
Attention: Executive Director

OJCS: Mayor's Office of Jobs and
Community Services
42 Hawkins Street
Boston, Massachusetts
Attention: Director

- 6.3 Section titles of this Plan are for convenience of reference only and shall be disregarded in construing any provision hereof.
- 6.4 The provisions of this Plan shall be binding upon, and shall inure to the benefit of, the successors and assigns of the Authority, the Commission and OJCS and the successor owners of the Project.
- 6.5 In the case of any inconsistency between the provisions of this Plan and of the Ordinance, or of the provisions of any rules or regulations which may be adopted by the Commission pursuant to the Ordinance, the provisions of the Ordinance, or of such rules or regulations, shall govern.

In WITNESS WHEREOF, the undersigned have caused this Plan to be executed and delivered as of the day of , 198 .

DEVELOPER:

Robert Epstein as Trustee of
Province Street Development Trust
and not individually

[Signatures continued on following page]

David Epstein as Trustee of Province
Street Development Trust and not
individually

John Svensen as Trustee of Province
Street Development Trust and not
individually

APPROVED AS TO FORM:

BOSTON REDEVELOPMENT AUTHORITY

Chief General Counsel

By: Stephen Coyle, Director

BOSTON EMPLOYMENT COMMISSION

By: Executive Director

MAYOR'S OFFICE OF JOBS
AND COMMUNITY SERVICES

BY: Director

Regulatory Controls and Permits (Permit and Approval Checklist)

Permit

Agency

Local

DEVELOPMENT PERMITS

Project Impact Report	BRA
Transportation Access Plan	Boston Transportation Department
Development Plan Approval	ZBA
Project Review	Landmarks Commission
Zoning Relief	ZBA
Street Discontinuances, Curb cut, Acquisition of property in streets	Public Improvements Comm. Department of Public Works Boston City Council, Mayor
Architectural Barriers Review	Architectural Access Board
Lot Consolidation	City of Boston
BCDC Review	BCDC (if functioning)

PARKING PERMITS

Notification regarding elimination of public parking spaces, Parking Freeze permit, Exemption from Parking Freeze for tenant spaces	Boston Committee on Licenses Public Safety Commission Boston Area Pollution Control Comm.
Permit to erect and maintain parking garage	Boston Committee on Licenses Public Safety Commission
License for storage of gasoline and diesel fuel	Boston Committee on Licenses Public Safety Commission
Certificate of Registration	Boston Fire Department

BUILDING PERMITS

Local

Demolition	Inspectional Services	August, 1989
Fire Safety Permit	Boston Fire Department	August, 1989
Building Permit	Inspectional Services	August, 1989
Permit to Allow Construction Beyond Normal Business Hours	Boston Air Pollution Control Commission	August, 1989

Regulatory Controls and Permits (Checklist) cont.

Permit

Agency

BUILDING PERMITS

State

Pre-Demolition Notice

DEQE

Pre-Construction Notice

DEQE

SEWER TIE-IN

Local

Sewer Tie-in permit

Boston Water and Sewer
Commission

State

Sewer Connection Approval

Mass Division of Water
Pollution Control
DEQE

Industrial User Permit:
Preliminary and Final Approvals

MWRA

Approval of Grease Traps

MWRA

OTHER ENVIRONMENTAL

State

MEPA Compliance
(confirmation that no ENF
or EIR required)

Executive office of
Environmental Affairs

Fossil Fuel Utilization Permit

DEQE

Notice of intent to demolish
structures

DEQE

Regulatory Controls and Permits (Article 38)

The following discussion evaluates the proposed development's conformity to the recently enacted Midtown Cultural District Plan (Article 38 of the Boston Zoning Code) effective March 20, 1989.

Ground Level uses: Ground level uses are provided on both Province Street and Bosworth Street. The ground floors will be tenanted to comply with the uses described in Appendix B of the Plan.

Neighborhood Business Opportunities:

The developer will use best efforts to market space within the project to neighborhood business establishments in Chinatown. This can be accomplished with both targeted newspaper advertising and with directed mailings. A final plan will be submitted when regulations have been fully developed by the BRA.

Day/Family Care Facilities:

The developer will fulfill the requirement by creating an on-site 4000 square foot day care facility. This facility is approximately 700 square feet larger than required under the regulation. A plan for the day care component will be finalized when regulations have been adopted by the BRA.

Allowed uses: Office, retail and restaurant are allowed uses on this site. A conditional use permit for parking will be required.

Summary of Zoning Relief Requirements:

The 45 Province Street development site lies within the newly created Midtown Cultural District as established by Article 38 of the code, but does not fall within any PDA or Protection District established thereunder. The site also lies within a Restricted Parking District, as defined in the Code. Relief from the provisions of the Code, either as conditional use permit or as exception, will be required under the following provisions of Article 38:

- Section 38-7. An exception to permit FAR of 45 Province Street to exceed the as-of-right FAR of 10 and the as-of-right height of 155 feet to permit an FAR of 11.81 and a height of 162.
- Section 38-8. An exception to allow increase in the as-of-right FAR, as increased pursuant to Section 38-7, of one (1) ratio point by reason of the incorporation of Ground Level Uses and on-site day care facilities.
- Section 38-18. Both accessory parking for office and retail uses and a parking garage are conditional uses.
- Section 38-19. An exception from the street wall height requirements and sky plane setback requirements applicable to Bosworth Street and Province Street.



May 1, 1989

Myrna Putziger, P.C.
McCormack & Putziger
265 Franklin Street
Boston, MA 02110

RE: 45 Province Street, Boston, MA

Dear Mr. Putziger:

My staff have reviewed the Project Notification Form and the Draft Project Impact Report received; April 6, 1989, which you submitted describing the proposed development of 45 Province Street.

The project location is adjacent to several historic properties, including the Tremont Temple Baptist Church and the Parker House which are listed in the State Register of Historic Places and have been determined eligible for listing on the National Register of Historic Places. Also in the vicinity of the project location are Old City Hall and King's Chapel, which are National Historic Landmarks and are listed in the State and National Registers of Historic Places.

After review of the materials submitted, I concur to a finding of no adverse effect for this action (950 CMR 71.07 (b)) provided the following conditions are met: the project proponent will hire a preservation consultant to investigate the historic configuration of the Province House steps thus enabling their accurate restoration as part of the overall project. In addition, the MHC staff requests the opportunity to review plans for the proposed steps restoration as they are developed.

If you should have any questions, please contact Allen Johnson of this office. Thank you for your cooperation.

Sincerely,

for Norma Simon

Valerie A. Talmage
Executive Director
State Historic Preservation Officer
Massachusetts Historical Commission

VAT/ljs

cc: Boston Preservation Alliance
Boston Landmarks Commission
John Zajak, DEQE/DWPC
Mass. Water Resources Authority



THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

MICHAEL S. DUKAKIS
GOVERNOR

April 11, 1989

JOHN DEVILLARS
SECRETARY

Myrna Putziger, P.C.
McCormack & Putziger
265 Franklin Street
Boston, MA 02110

Re: 45 Providence Street, Boston

Dear Ms. Putziger:

Thank you for your request of April 6, 1989, for an opinion as to the status of the above referenced project under the provisions of the Massachusetts Environmental Policy Act and its regulations. Based on the information therein, it is the opinion of the Secretary, pursuant to 301 CMR 11.03(3), that the project as described does not meet the MEPA review thresholds at 301 CMR 11.25, 26, and 27. Therefore, no Environmental Notification Form need be filed and Commonwealth agencies are free to act.

Sincerely,

A handwritten signature in cursive script that reads "Steven C. Davis".

Steven C. Davis
Assistant Secretary
Environmental Impact Review

SCD/sd

Community Groups

1. ABUTTERS (Immediate abutters in bold type)

TREMONT STREET

Parker House
#60-74 Tremont Street , 26,852 sf
Paul McGuann
Omni Hotels
500 Lafayette Road
Hampton, N.H. 03842
(603) 926-8911

Tremont Temple Baptist Church
#76-#88 Tremont Street, 12,948 sf
Peter Ziner
Ziner and Rossetti, Inc.
1345 Main Street
Waltham Ma. 02154
(617)647-9616

#90 Tremont Street
Christopher Flemming
St. James Properties, Inc.
67 Batterymarch Street
Boston, Ma. 02110
(617)439-0533

SCHOOL STREET

Boston Five Cents Savings Bank
#24-#30 School Street, 11,853 sf
Peter J. Blanpied, President
Robert J. Spiller, Chairman CEO
Sean McQuire, Vice-President Ext. 241
(617)742-6000

Parker House Office Building
#42-#52 School Street, 5605 sf
Nathan Miller Properties, Ltd.
6 Beason Street
Boston, Ma.
(617) 742-9480

PROVINCE STREET

#16-28 (Valued at 325,333 Washington Street)
#32, #54 (Valued at 23-29 Bromfield Street)

Community Groups (cont)

WASHINGTON STREET

Jewelers Building

#325,333 Washington Street, 27,903 sf

Three 33 Washington Street Condominium Trust

Managed by: Robert Egan

RFE Management

(617) 277-2311

BROMFIELD STREET

Hutchinson Building

#23-#29 Bromfield Street, 3654 sf

Sal J. Lagrassa

(617) 357-6861

Marliave Restaurant

#31-#39 Bromfield Street, 2578 sf

(617) 423-6340

Mr. Roy Rossetti

Massachusetts Bible Society

#41 Bromfield Street, 1137 sf

(617) 542-2230

Donald Wells, Director

#43, #51 Bromfield Street

R.D. Cohen, *et al* Associates

#53 Bromfield Street

H. Konick *et ux*

Druker Properties

#20, #26, #28, #30, #32, #38 Bromfield Street 18,000 ± sf

#40, 44 Bromfield Street

A.W. Perry, Inc.

2. TENANTS

LAZ Parking Ltd.

Jeffrey Karp

1255 Boylston Street

Boston, Ma. 02115 (617) 426-0604

The Little Smokeshop

James R. McDuffee

47 Province Street

Boston, Ma. 02108 (617) 523-9431

The Littlest Bar

Peter Sheidan, KAS Inc./The Littlest Bar

47 Province Street

Boston, Ma. 02108 (617) 523-9766

Community Groups (cont)

3. COMMUNITY GROUPS

Boston Preservation Alliance:

Susan Park
367-2458

Met with Alliance on September 15, 1988 and again on May 10, 1989 to present preliminary and FPIR plans. A letter from the Boston Preservation Alliance accompanies this submittal.

Downtown Crossing Association:

Bethany Kendall
482-2139

Met on June 29, 1988. Project was presented to DCA with T. William Fitzgerald, Bethany Kendall, Dawn-Marie Driscoll, Roy Rossetti, and a representative from Druker Co. present. The plans were well received although traffic during construction was a concern. DCA encouraged Abbey to provide a street detail during the understreet construction period to help in directing traffic. They specifically liked active ground floor uses. They want us to utilize streetscape materials consistent with what is now being planned for the rest of the district. Abbey will follow up with Wallace Floyd, Associates (planners for Downtown Crossing) to coordinate planning.

Friends of the Common

Henry Lee, Pres.
227-8955

Greater Boston Chamber of Commerce

600 Atlantic Avenue
13 th Floor
Boston, Ma. 02210-2200

Center City Task Force

Simone Auster, V.P. Community Development
227-4500 Called 6/10/88, PNF forwarded in mid June.

Midtown Cultural District Task Force

Mid -Town Cultural District

Larry Murray
423-4454

A presentation to the Midtown Cultural District Task Force was made on December 13, 1988. On going discussion with the Midtown Cultural District Task Force has continued and another general presentation will be made during the FPIR review period.

Dinis Site

Saint James Property
Pam Chicklis
439-0533

Met on 10/23/88 with St. James Properties representatives. We will continue a dialog to coordinate streetscape planning and other relevant issues as they arise.

The development team has met with all immediate abutters and has scheduled additional meetings with abutters to review the FPIR submittal.

The developer has met and will continue to meet with elected representatives and city councilors during the FPIR review period.

BOSTON PRESERVATION ALLIANCE

May 10, 1989

Mr. David Epstein
The Abbey Group
575 Boylston Street
Boston, MA 02116

RE: 45 Province Street Proposal

Dear David:

Thank you for updating the Boston Preservation Alliance on your proposal for the parking lot and garage site located at 45 Province Street.

The Alliance supports your proposal to redevelop this site enthusiastically. As I mentioned, we have supported the guidelines of the new Midtown Cultural District Plan which incorporates this site. Your proposal substantially meets these guidelines and will certainly enhance Boston's historic downtown.

We look forward to our continued discussions on design details with you.

Sincerely,



Susan Park
Chairman

cc: Stephen Coyle, BRA
Judith McDonough, BLC

Massachusetts Bible Society

Founded 1809

41 Bromfield Street/Boston, MA 02108/Telephone: (617) 542-2230

Donald A. Wells, Ph.D., *Executive Director*

November 16, 1988

Mr. David Epstein
Senior Vice President
The Abbey Group
575 Boylston Street
Boston, MA 02116

Dear Mr. Epstein:

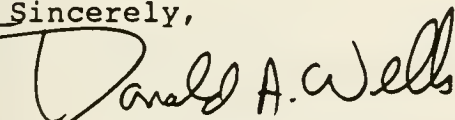
Thank you very much for taking time last Thursday, Nov. 10th, to update me on the plans of The Abbey Group to build an office building with street-level retail and underground parking facilities on the site of the old Province Street parking garage. It was exciting to hear of your plans and of the new vitality those plans will bring to our area.

It is my understanding that those plans will have minimal or no impact upon the property of the Massachusetts Bible Society whose back entrance is on Bosworth Street. We would appreciate, however, you keeping us informed as the project goes forward. Particularly, we would be interested in seeing any forthcoming impact study that you will prepare.

Thank you very much for your verbal commitment to see to it that the one parking space that belongs to the Massachusetts Bible Society will be cared for either on Bosworth Street or in your new parking facility. The availability of a car is very important in my work with the Massachusetts Bible Society. I am most pleased for your sensitivity in that regard.

Again, best wishes as your project moves toward its starting date. We certainly welcome you to our special area in downtown Boston.

Sincerely,



Donald A. Wells
Executive Director

DAW:hjr

Cafe Marliave

AT YE OLD PROVINCE STEPS
ON THE FREEDOM TRAIL
BOSTON, MASS.



EST. 1875

10 BOSWORTH STREET



BOSTON, MASS. 02108

ROY ROSSETTI

TELEPHONE
423-6340

January 3, 1989

Mr. David Epstein
Abbey Group
575 Boylston Street
Boston, Mass. 02116

Dear Sir:

After having met with you on several occasions and examining the well detailed plan for the proposed Province Street garage project, I feel that the project will not only increase land value, but also will promote business activity as well as beautify the area.

Of course the project will entail some hardships for the abutters, mainly traffic congestion, noise, dust, dirt, but I believe that if we work together these can possibly be minimized.

Sincerely,
MARLIAVE RESTAURANT INC.

RR:lp

Final

TRANSPORTATION
ACCESS PLAN

45 Province Street
Boston, Massachusetts

May 1989
(revised from October 1988)

Vanasse Hangen Brustlin, Inc.

FINAL TRANSPORTATION ACCESS PLAN

45 PROVINCE STREET

Prepared for

THE ABBEY GROUP

May 1989

(Revised from October 1988)

Prepared by

VANASSE HANGEN BRUSTLIN, INC.
Consulting Engineers and Planners
60 Birmingham Parkway
Boston, MA 02135

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
A. Summary of Findings	1
B. The 45 Province Street Site	2
C. The 45 Province Street Development Proposal	3
D. Study Area	4
E. Study Methodology	4
EXISTING CONDITIONS	6
A. Traffic	6
B. Parking	10
C. Public Transportation	15
D. Pedestrians	19
PROBABLE PROJECT IMPACTS	24
A. Traffic	24
B. Parking	43
C. Public Transportation	46
D. Pedestrians	51
E. Construction Impacts	58
TRANSPORTATION MITIGATION AND MONITORING	62
A. Traffic Management	62
B. Parking Management	69
C. Construction Management	70
D. Monitoring Program	72

LIST OF TABLES

<u>Table No.</u>	<u>Title</u>
1	Proposed Development
2	Existing Traffic Volume Summary
3	Province Street Parking Space Use Summary
4	Vehicle Arrival and Departure Activity
5	Existing Rapid Transit Line Capacity
6	Existing Rapid Transit Capacity and Ridership
7	New Daily Person Trips
8	New Daily Person Trips by Mode
9	Vehicle Occupancy Factors
10	New Daily Vehicle Trips
11	Percentages of Daily Trips During Peak Hours by Type and Direction
12	New Peak Hour Trips by Mode (Peak Direction)
13	New Project Trips by Mode
14	New Daily Delivery Vehicle Arrivals
15	New Daily Taxi Arrivals
16	1991 Background Development
17	Project Trip Distribution
18	Level-of-Service Delay Criteria for Signalized Intersections
19	Level-of-Service Delay Criteria for Unsignalized Intersections
20	Vehicle Level-of-Service Summary
21	Net New Parking Demand
22	1991 Peak Hour Rapid Transit Line Capacity

LIST OF TABLES (Continued)

<u>Table No.</u>	<u>Title</u>
23	Transit Trip Generation
24	Distribution of New Transit Trips
25	1991 Rapid Transit Ridership and Capacity
26	Project-Generated Pedestrian Trips
27	1991 Background Development (Pedestrians)
28	Pedestrian Level-of-Service Criteria on Walkways
29	Pedestrian Walkway Level-of-Service Summary
30	Access Plan Goals for Office Work Trips

LIST OF FIGURES

<u>Figure No.</u>	<u>Title</u>
1	Site Plan
2	Study Area
3	Study Area Circulation
4	Existing Daily Traffic
5	Existing Morning Peak Hour Traffic Volumes
6	Existing Evening Peak Hour Traffic Volumes
7	1987 BTD Parking Zones and Study Area
8	Province Street Parking Survey Destinations
9	Location of Public Transportation
10	Existing Morning Peak Hour Pedestrian Volumes
11	Existing Midday Peak Hour Pedestrian Volumes
12	Existing Evening Peak Hour Pedestrian Volumes
13	1991 No-Build Morning Peak Hour Traffic Volumes
14	1991 No-Build Evening Peak Hour Traffic Volumes
15	1991 Build Morning Peak Hour Traffic Volumes
16	1991 Build Evening Peak Hour Traffic Volumes
17	1991 No-Build Morning Peak Hour Pedestrian Volumes
18	1991 No-Build Midday Peak Hour Pedestrian Volumes
19	1991 No-Build Evening Peak Hour Pedestrian Volumes
20	1991 Build Morning Peak Hour Pedestrian Volumes
21	1991 Build Midday Peak Hour Pedestrian Volumes
22	1991 Build Evening Peak Hour Pedestrian Volumes

INTRODUCTION

This report discusses the transportation impacts of the proposed development project at 45 Province Street in Downtown Boston. An analysis was performed for existing and future conditions (1991) to estimate the project's impacts in terms of vehicle, transit and pedestrian trips. Analyses for the forecast year were conducted for No-Build and Build conditions. In both cases, other projects which are expected to be completed by the 1991 analysis year have been included in the assessment of future conditions. The work described herein, is based on a scope approved by the Boston Redevelopment Authority (BRA) and the Boston Transportation Department (BTD). It also includes revisions, additions, and clarifications in response to a somewhat larger build program, additional parking spaces, and comments on the Draft Transportation Access Plan made by the BRA and the BTD.

A. SUMMARY OF FINDINGS

On a daily basis, the project is expected to generate a total of approximately 433 new vehicle-trips daily. Approximately 69 of the 433 new project-generated vehicle-trips are expected to occur in the morning peak hour while approximately 77 project-generated trips are expected to occur in the evening peak hour. Six intersections in the vicinity of the project site were analyzed for traffic impacts. The addition of project traffic in 1991 will have no significant effect on levels of service and delays.

Two options for parking underneath the building were explored. Option A proposed a seven-level below grade parking facility underneath the building and extending underneath both Chapman Place and Province Street. This seven-level facility would provide approximately 440 parking spaces. Option B

proposed a four-level below grade parking facility underneath the building only. This four-level facility would provide approximately 140 parking spaces. Currently, 305 parking spaces are provided on the site.

The new 433 project-generated daily vehicle-trips will create a demand for 116 long-term parking spaces and 38 short-term spaces, or a total of 154 spaces.

The proposed development is conveniently located near all four rapid transit lines, commuter rail lines, and numerous express bus routes. The project is expected to generate 1,435 transit trips daily. Approximately 254 inbound trips are projected for the morning peak hour, and 263 outbound trips are projected for the evening peak hour. When distributed to the various rapid transit lines, these new peak-hour transit trips will contribute less than three-tenths of one percent of ridership at peak load points on the system.

B. THE 45 PROVINCE STREET SITE

The 45 Province Street development site, shown in Figure 1, comprises approximately 13,881 square feet. The site is presently occupied by a mechanical parking garage, a separate parking lot, a small bar, and a small convenience store.

The site is bounded on the northwest by Chapman Place, a narrow public way used primarily as a service access to the Parker House and the Parker House office building. To the northeast is the Parker House Office Building, currently a multi-tenant, 11-story brick and stone office building. The main frontage of the site faces Province Street to the southeast. Province Street is a short, 50-foot wide public street lined with older office buildings, which links School Street and Bromfield

Street. To the southwest is Bosworth Street, a narrow roadway joining Chapman Place and Tremont Street and serving only as access to abutting properties. Because of grade differences, a part of the site runs under the portion of Bosworth Street designated as a private way.

C. THE 45 PROVINCE STREET DEVELOPMENT PROPOSAL

The 45 Province Street development proposal includes the demolition of the existing Province Street Parking Garage and the construction of a new office and retail building with below-grade parking.

A 13-story stone and brick building is proposed with below-grade parking under the building. Two options for parking underneath the building were explored. Option A proposed a seven-level below grade parking facility underneath the building and extending underneath both Chapman and Province Streets. This seven-level facility would provide approximately 440 parking spaces. This is 60 spaces more than provided at the Draft TAP stage. Option B proposed a four-level below grade parking facility underneath the building only. This four-level facility would provide approximately 140 parking spaces. Currently, 305 parking spaces are provided on the site (276 spaces in the parking garage and 29 parking spaces in a small parking lot).

Programmed uses for the project include commercial office space housed in the upper floors of the building, while the ground floor will be retained for retail and lobby space. A day care facility will also be provided. It will be open to the general public, but priority will be given to tenants of the project. Table 1 summarizes the proposed development program. The office component is slightly larger (about 8,100 square feet) than at the Draft TAP stage.

TABLE 1
PROPOSED DEVELOPMENT

<u>Type of Use</u>	<u>Proposed Size*</u>
Office	148,290
Retail	11,850
Day Care	<u>4,000</u>
Total	164,140

* Gross square feet.

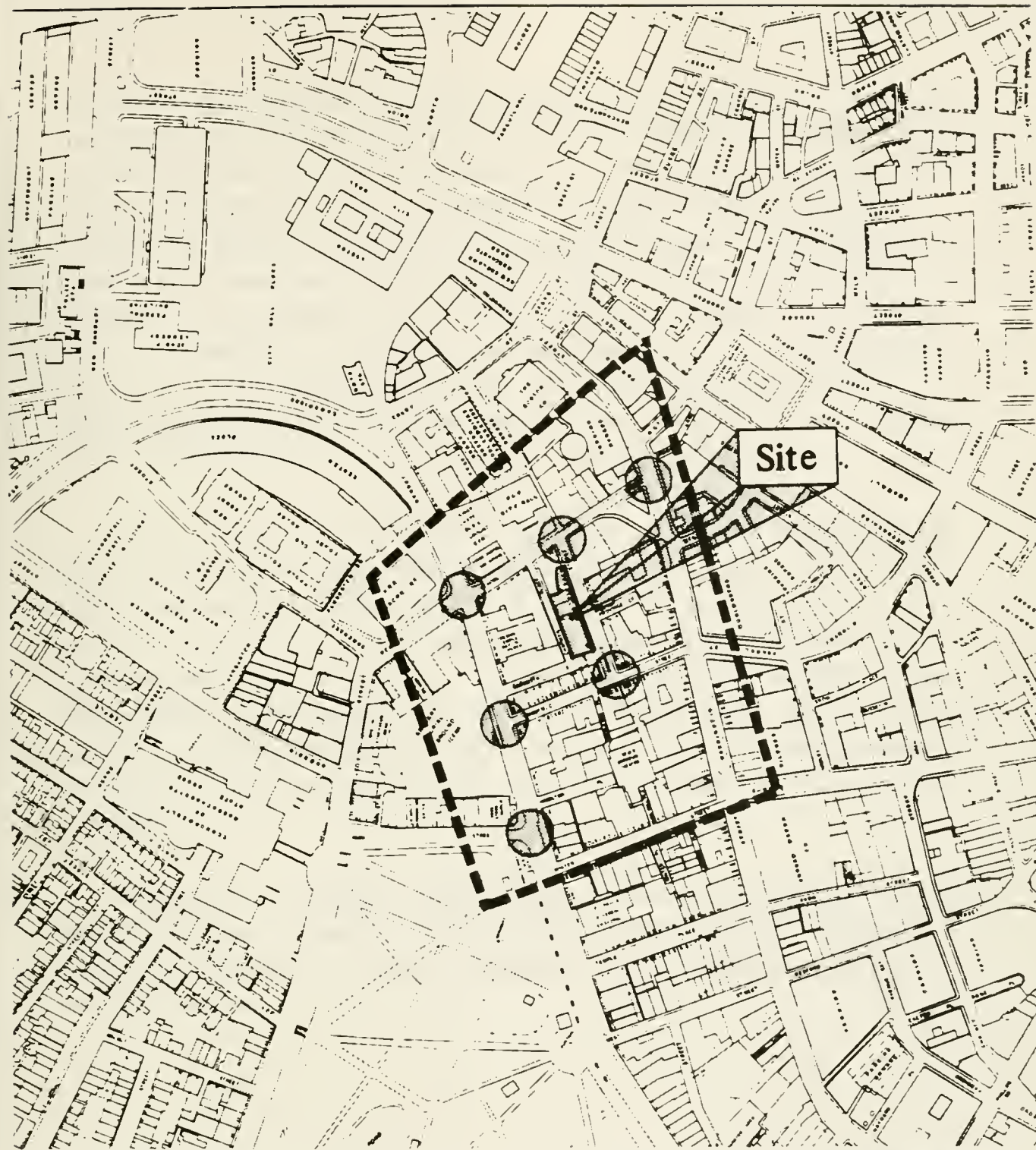
D. STUDY AREA

The study area for this project is generally bounded by Washington Street to the east, Winter Street to the south, Tremont Street to the west, and School Street to the north. Six intersections have been designated as analysis locations to measure the traffic impacts of the project. These intersections and the site location are illustrated in Figure 2.

Public transportation in the area of the project is well developed and utilized. Located within one-quarter mile of the site are all four of the subway lines operated by the Massachusetts Bay Transportation Authority (MBTA), and express buses at Franklin and Federal Streets. The commuter rail lines and express buses at South Station are located within one-half mile of the site. The closest rapid transit station is the State Street Station, which is located within 500-feet of the project site.

E. STUDY METHODOLOGY

This transportation study was conducted in three distinct phases. Phase I involved an inventory of existing conditions and travel demand characteristics in the area. The inventory



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LEGEND:

- Study Area
- Analysis Locations

 Fig. 2

Study Area

included researching previous transportation reports as well as conducting new observations of area travel demands. Observations of traffic and pedestrian volumes were conducted in August and September, 1988, during the morning, midday and evening peak periods at several locations in the study area. A supplementary pedestrian count was taken in April 1989. Adjacent roadway volumes were recorded over a 24-hour period in April and August 1988. In addition, transit line performance and ridership were assessed. Data collected during the inventory phase were assembled and used to define the existing transportation network as a base condition for subsequent analyses.

Phase II of the study built upon the data base assembled in Phase I and established the framework for evaluating the transportation impacts of the proposed project. In this phase, specific travel demand forecasts for the project were assessed along with future demands projected to be created by other area developments. Estimates were made for three travel modes: automobile, transit and pedestrian. The year 1991 was selected as the analysis year based on the projected occupancy of the project.

Phase III, the final study phase, included evaluation of the impacts of the project on the transportation system, identification of measures to mitigate impacts, and development of a monitoring program.

EXISTING CONDITIONS

A. TRAFFIC

The existing roadways within and adjacent to the study area consist of both local and arterial streets. An inventory of roadway characteristics and traffic volumes was compiled as part of the Phase I data collection process.

1. Roadway Network

Roadways in the area which will provide direct access to and from the immediate vicinity of the site include Province Street, School Street, Bromfield Street, Tremont Street, Beacon Street, Park Street and Washington Street. Due to the downtown traffic restrictions, access to the site from the regional arterial system is provided via School Street to Province Street, except for trucks and taxis which can access the site via Franklin Street to Bromfield Street during non-restricted hours. Access to the regional arterial system from the site is provided via Province Street to School Street or Bromfield Street.

The downtown traffic restrictions apply specifically to Washington Street between Milk Street and Temple Place and Franklin Street west of Hawley Street. Buses and emergency vehicles are permitted in the restricted zone at all times. Before 11:00 AM, trucks are admitted to the restricted zone; after 7:00 PM, taxicabs and trucks are permitted. During recent construction work in this area related to the MBTA rapid transit system, these regulations have been relaxed somewhat, particularly on the upper section of Franklin Street.

Figure 3 illustrates the roadway circulation pattern currently existing in the area. The following provides a brief summary of main study area roadways:

- Beacon Street - a major arterial linking Back Bay and Government Center. In general, between Tremont Street and Somerset Street, one travel lane is provided in the westbound direction while two travel lanes and a parking, loading, and cab stand lane are provided in the eastbound direction. West of Somerset Street, Beacon Street provides only one-way travel eastbound.
- Bromfield Street - a local street which runs from Washington Street to Tremont Street. Bromfield Street is a one-way westbound roadway with loading provided on the south side of the street. Access to Bromfield Street is restricted to trucks and taxis east off Province Street.
- Park Street - a connecting street between Beacon Street and Tremont Street. Park Street is a two-way roadway with one travel lane provided in each direction. A parking and loading lane is provided adjacent to the westbound travel lane.
- Province Street - a two-way roadway connecting Bromfield Street and School Street. One travel lane is provided in each direction. Loading zones are provided on both sides of the street. Handicapped parking is provided on the east side of Province Street near School Street.
- School Street - a one-way eastbound roadway providing access between Tremont Street and Washington Street. One travel lane is available with a loading lane provided along the south face.



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Study Area Circulation

LEGEND:

 Restricted Traffic Zones

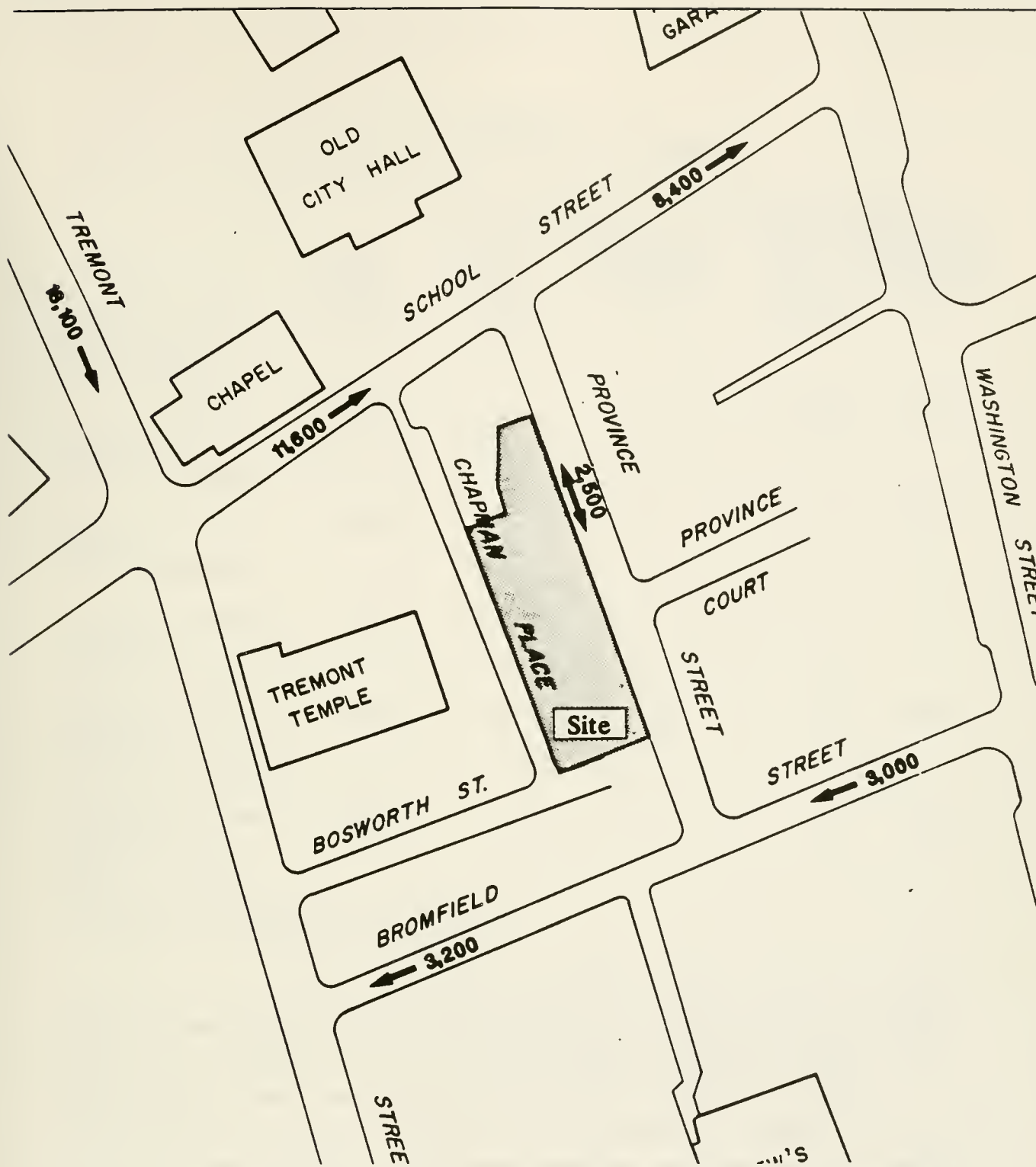
 Fig. 3

- Tremont Street - a major arterial connecting the Government Center area to the Theatre District. The direction of travel is southbound. In general, three travel lanes are provided. Parking is not allowed on either side of the street.
- Washington Street - a one-way northbound roadway between Milk Street and State Street. One travel lane is provided. Between Milk Street and Temple Place, vehicle travel is restricted due to the street's designation as Downtown Crossing.

2. Traffic Volumes

Preliminary manual and mechanical recorder counts were conducted during April of 1988 and were supplemented with counts conducted during August and September of 1988. Figure 4 shows the average weekday daily traffic (AWDT) on the surrounding roadways. These volumes are also displayed in Table 2 along with the morning and evening peak hour traffic volumes, and the peak hour percentage of daily traffic for study area streets adjacent to the site.

The AWDT in the area ranged from 2,500 vehicles on Province Street south of School Street to 18,100 vehicles on Tremont Street north of School Street. The peak hour percent of AWDT is slightly greater in the evening than in the morning at all locations except at School Street west of Province Street and at Province Street south of School Street. During the morning peak hour, the percent of AWDT for all locations ranges from 4.8 percent to 6.4 percent. In the evening peak hour it ranges from 4.2 percent to 7.8 percent.



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Not to Scale

Existing
 Daily Traffic

Fig. 4

TABLE 2
EXISTING TRAFFIC VOLUME SUMMARY

<u>Location</u>	<u>AWDT*</u>	<u>Morning Peak Hour</u>		<u>Evening Peak Hour</u>	
		<u>Volume</u>	<u>Percent of AWDT</u>	<u>Volume</u>	<u>Percent of AWDT</u>
Tremont Street north of School Street	18,100	1,150	6.4	1,390	7.7
School Street west of Province Street	11,600	595	5.1	555	4.8
School Street east of Province Street	8,400	525	6.3	550	6.5
Bromfield Street west of Province Street	3,200	175	5.5	250	7.8
Bromfield Street east of Province Street	3,000	160	5.3	205	6.8
Province Street south of School Street	2,500	120	4.8	105	4.2

* Average weekday daily traffic.

During the evening peak hour, traffic control officers were observed monitoring the intersections of Tremont Street, Beacon Street, and School Street, Tremont Street and Park Street, and Washington Street and School Street. The traffic officers controlled the flow of vehicular and pedestrian traffic as necessary, so that pedestrians crossed during the appropriate signal phases and did not normally interfere with vehicular traffic.

Manual turning movement counts were conducted at the six analysis locations and the existing site drives for both the morning and evening peak periods (7:00 to 9:00 AM and 4:00 to

6:00 PM). Existing morning and evening peak hour traffic volumes are shown in Figures 5 and 6, respectively.

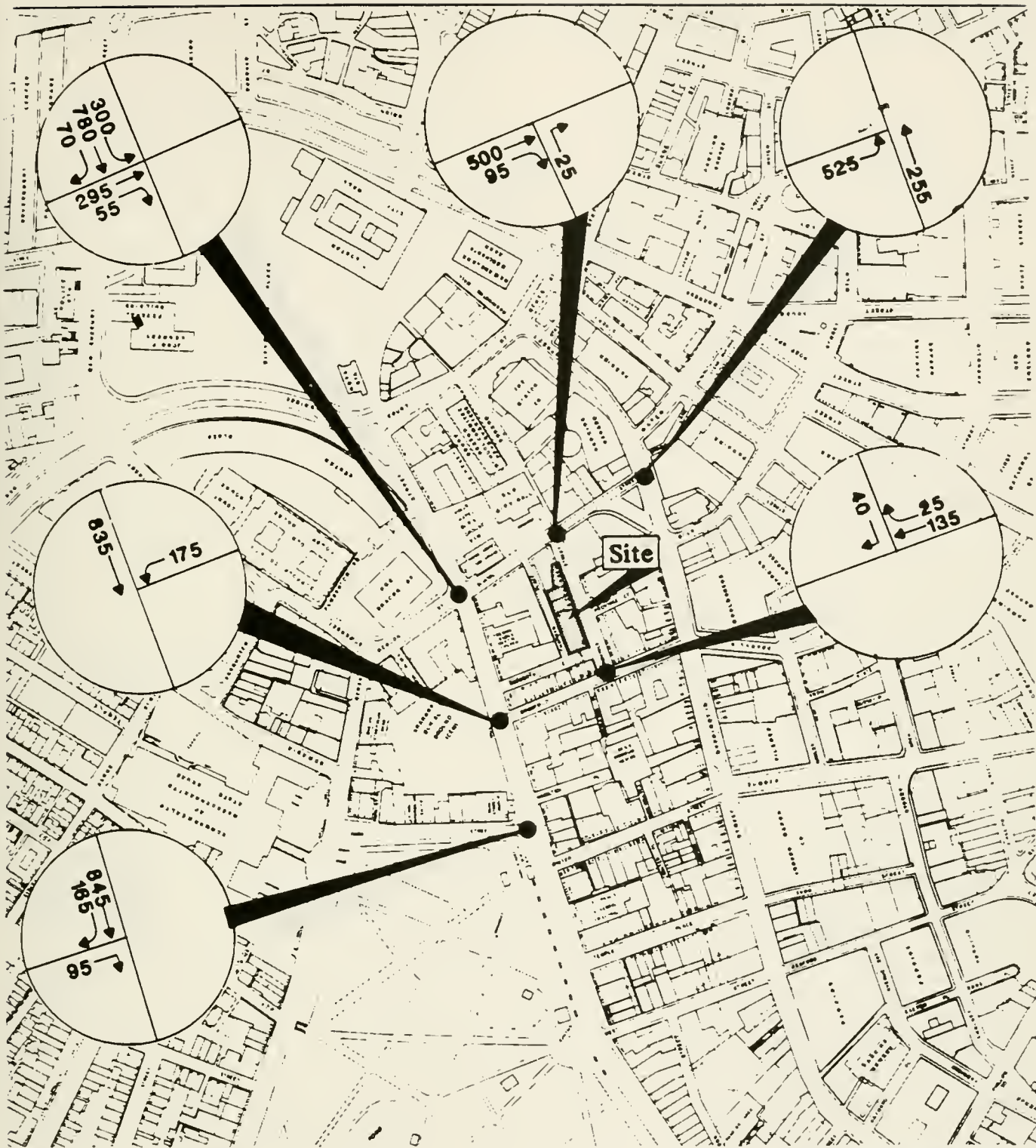
Discussions with the operator of the 45 Province Street parking garage and parking lot reveal that the site currently generates approximately 650 trips on an average weekday (325 entering and 325 exiting vehicle trips). Observations of traffic entering and exiting the existing parking garage and lot reveal that approximately 50 vehicles enter the site during the morning peak hour, while about 70 vehicles exit the site during the evening peak hour.

B. PARKING

On-street parking is not provided on any of the roadways in the study area. Parking for approximately six to nine vehicles with handicap license plates is provided on the east side of Province Street just south of School Street. Curbside loading zones for commercial vehicles are provided on both the east and west sides of Province Street, on the south side of Bromfield Street, on the south side of School Street and the north side of Park Street.

Currently located on the site are a parking garage with a capacity of approximately 276 vehicles and a parking lot with a capacity of approximately 29 vehicles, with a posted daily parking fee of \$13 and \$17 for the parking garage and lot, respectively, and a monthly rate of \$225.

Discussions with the operator of the Province Street parking facilities revealed that approximately 250 of the 305 spaces available are occupied during the peak hours of usage. In addition, the recently published (July 1988) 1987 Downtown Boston Parking Inventory Survey, conducted by the Boston Transportation

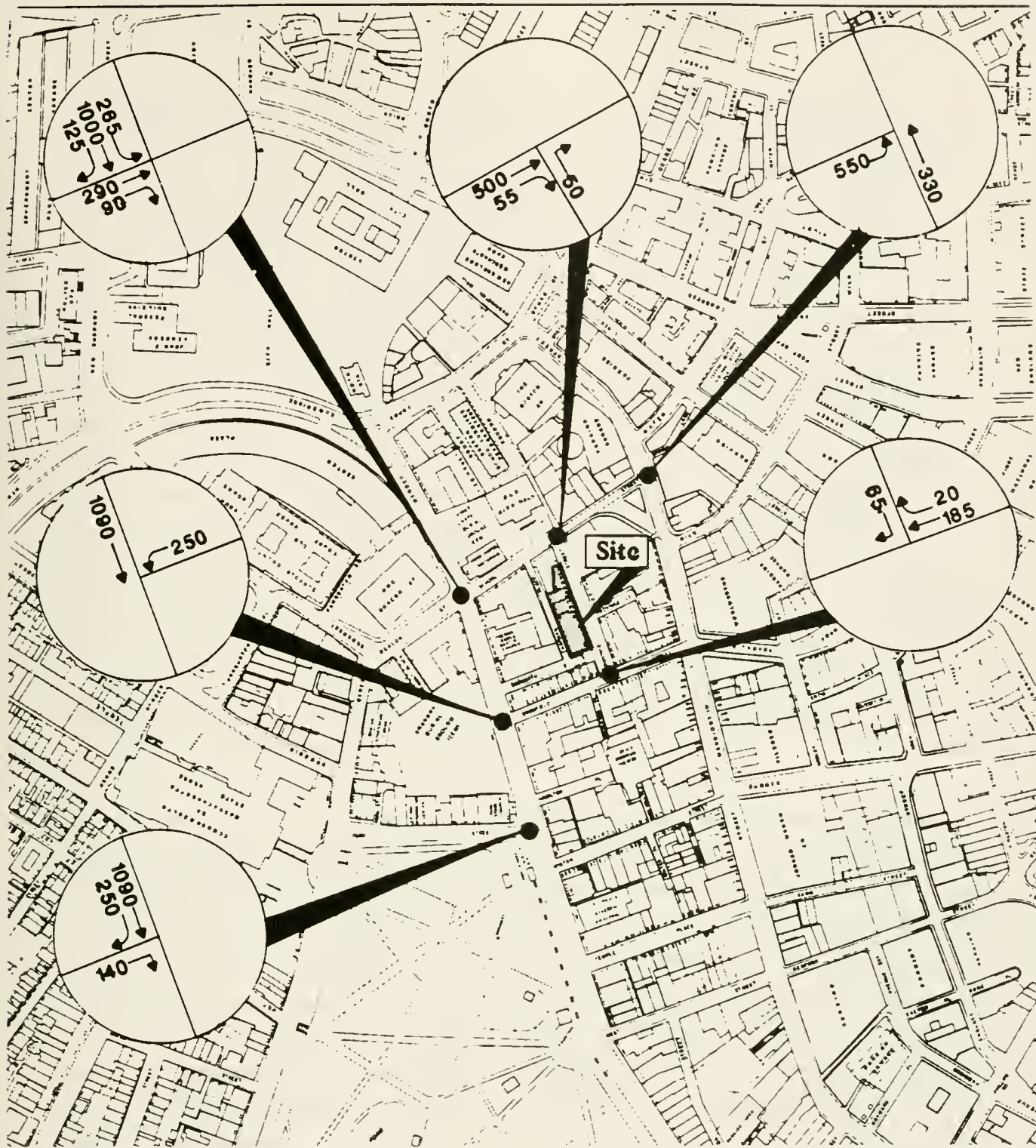


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 Fig. 5

Existing
AM Peak Hour
Traffic Volumes



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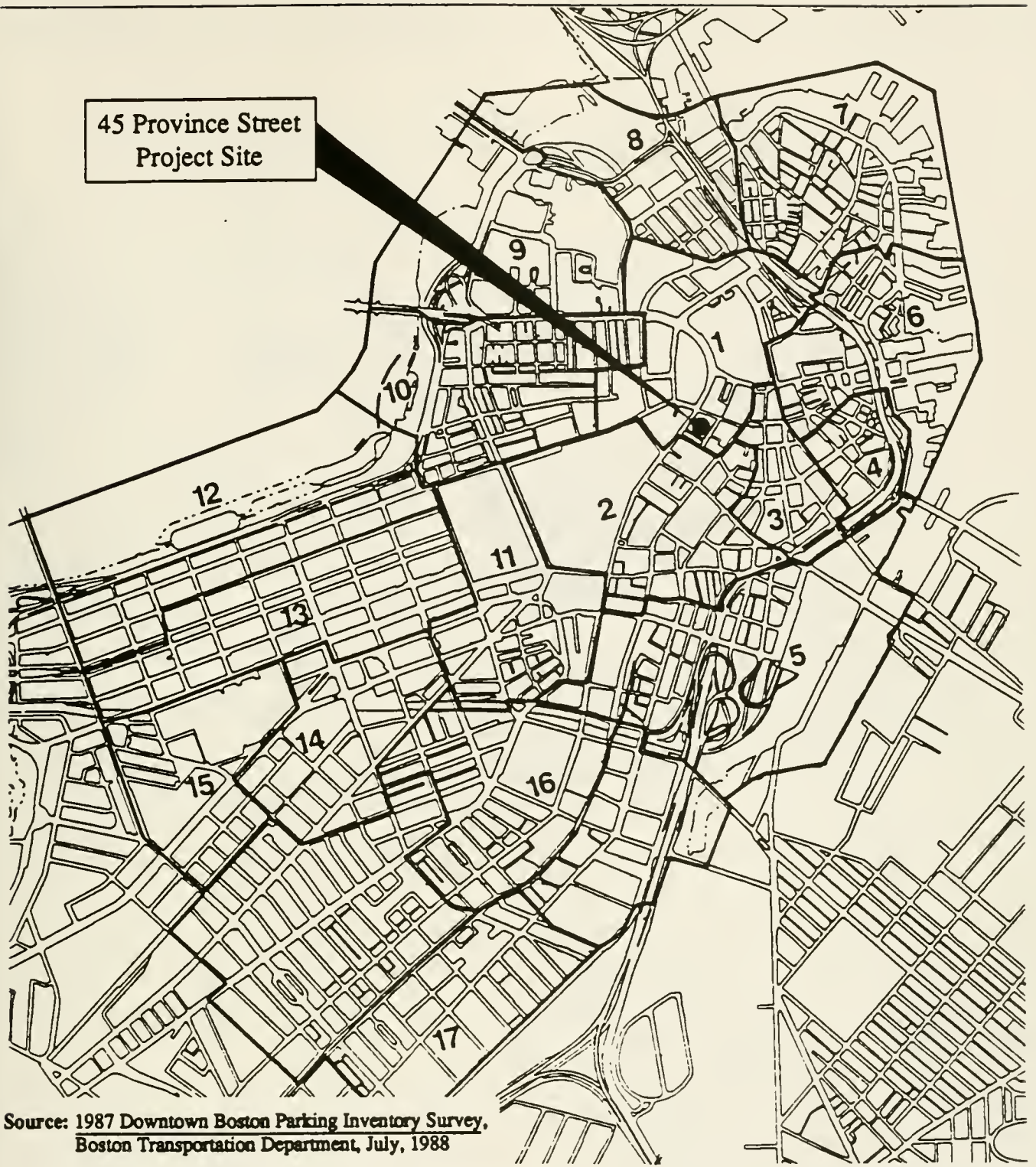
Existing
PM Peak Hour
Traffic Volumes

Fig. 6

Department, was reviewed in order to determine if a public parking space shortage existed in the vicinity of the 45 Province Street site. The study indicated that, in the zone in which the 45 Province Street site is located (see Figure 7), a public off-street parking supply of 4,354 spaces is available. During the 12:00 noon to 1:00 PM peak hour, 4,176 of the spaces (96 percent) are occupied. Because the project site is located on the edge of the city's Parking Zone 1 and close to Parking Zones 2 and 3, the same evaluation for Zones 2 and 3 was also made from the 1987 city survey. Zone 2 has a supply of 5,616 public off-street spaces, of which 5,123 (91 percent) are used during the 12:00 noon to 1:00 PM peak hour. The figures for Zone 3 are a 2,591-space supply and 2,640 used (102 percent). Combined figures for all three zones are 12,561 spaces available and 11,939 used (95 percent). This leaves a theoretical surplus of 622 public spaces in the three zones, but in reality any occupancy level of 90 percent or more indicates full utilization of existing spaces. This finding is similar to results of an earlier (1983) inventory study of Downtown parking.

In response to comments on the Draft Project Impact Report (DPIR), a survey was conducted of curb space use on the east side of Province Street between School Street and Province Court. The main intent of the survey, which was conducted on Thursday, April 13, 1989, from 7:00 AM to 6:00 PM, was to identify use of the handicapped and veteran's spaces designated in this zone, specifically the destinations of the users of these spaces. The survey was somewhat expanded to include all users of this zone, including commercial vehicles. The results of the survey are summarized below.

First, responding to the primary purpose of the survey, Figure 8 shows the actual destinations of the occupants of private autos parking in this zone. The figure indicates whether



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1987 BT Parking Zones and Study Area

Not to Scale

 Fig. 7



Province Street Parking Survey Destinations

LEGEND:

Destinations by
Type of Auto

- H Handicapped
- V Veterans
- S Standard
- W Waiting
- Survey Area

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Not to Scale

 Fig. 8

the vehicles involved had a handicapped plate (twelve vehicles), a veteran's plate (one vehicle), or a standard plate (twenty-five vehicles). Most of the occupants of the thirty-eight private vehicles surveyed have destinations within the immediate area. The number of destinations plotted does not match the number of vehicles surveyed because destinations were not able to be obtained for all vehicles. Several vehicles had occupants who were waiting for someone else. These are indicated in Figure 8 as well.

Two tables are presented below which summarize other key results of the survey. Table 3 shows average parking duration and vehicle occupancy for the various vehicle categories. It also shows the percentage of total parking time available at the surveyed curb space that each category represents. The latter assumes 12 spaces and 11 survey hours, for a total available time of 132 space hours. Each category's share of this total time is summarized in the table. Table 4 shows parking activity in terms of the number of vehicle arrivals and departures along the surveyed curb space.

TABLE 3
PROVINCE STREET PARKING SPACE USE SUMMARY

Category	Number of Vehicles Observed	Occupancy		Duration		Percent of Total Time Available
		Number of Occupants	Vehicle Occupancy Rate	Average (hours)	Total (hours)	
Private	38	49	1.29	2.44	92.78	70.0
Handicapped	12	14	1.17	6.68	80.36	60.9
Veteran	1	1	1.00	0.95	0.95	0.7
Standard	25	34	1.36	0.45	11.10	8.4
Commercial	29	-	-	0.43	12.61	9.6
At Curb	4	-	-	0.55	3.66	2.8
Double Parked	25	-	-	0.21	8.95	6.8
Free Time	-	-	-	-	26.98*	20.4
TOTAL	67	-	-		132.00**	100.0

* Free Time = total time available - occupied time.

** Total time available = 12 spaces x 11 hours = 132 space hours.

Note: Includes east side of Province Street between School Street and Province Court

TABLE 4
VEHICLE ARRIVAL AND DEPARTURE ACTIVITY

<u>Time</u>	<u>Private Autos</u>		<u>Commercial Vehicles</u>	
	<u>Arrive</u>	<u>Leave</u>	<u>Arrive</u>	<u>Leave</u>
Before 7:00 AM	3			
7:00 - 8:00 AM	6			
8:00 - 9:00 AM	2	3	4	2
9:00 - 10:00 AM	1		5	5
10:00 - 11:00 AM	4	3	3	5
11:00 - 12:00 Noon	6	6	2	
12:00 - 1:00 PM	5	5	1	2
1:00 - 2:00 PM	1	1	4	5
2:00 - 3:00 PM	4	4	4	3
3:00 - 4:00 PM	2	4	2	2
4:00 - 5:00 PM	2	7	4	3
5:00 - 6:00 PM	5	5		1
Past 6:00 PM	<u>0</u>	<u>3</u>	<u>—</u>	<u>1</u>
TOTAL	41	41	29	29

The main results presented in these tables are as follows:

- Of the private vehicles using the curb space, most are illegal parkers (non-handicapped or veteran);
- Private vehicles have occupancies ranging from under 1.2 for handicapped and veteran vehicles to almost 1.4 for standard vehicles;
- Average parking durations for private autos range from less than one-half hour for standard vehicles to more than 6.5 hours for handicapped vehicles;
- Most commercial vehicles double park;
- Average parking durations for commercial vehicles range from about 12 minutes for double parkers to more than one-half hour for those parked at the curb;

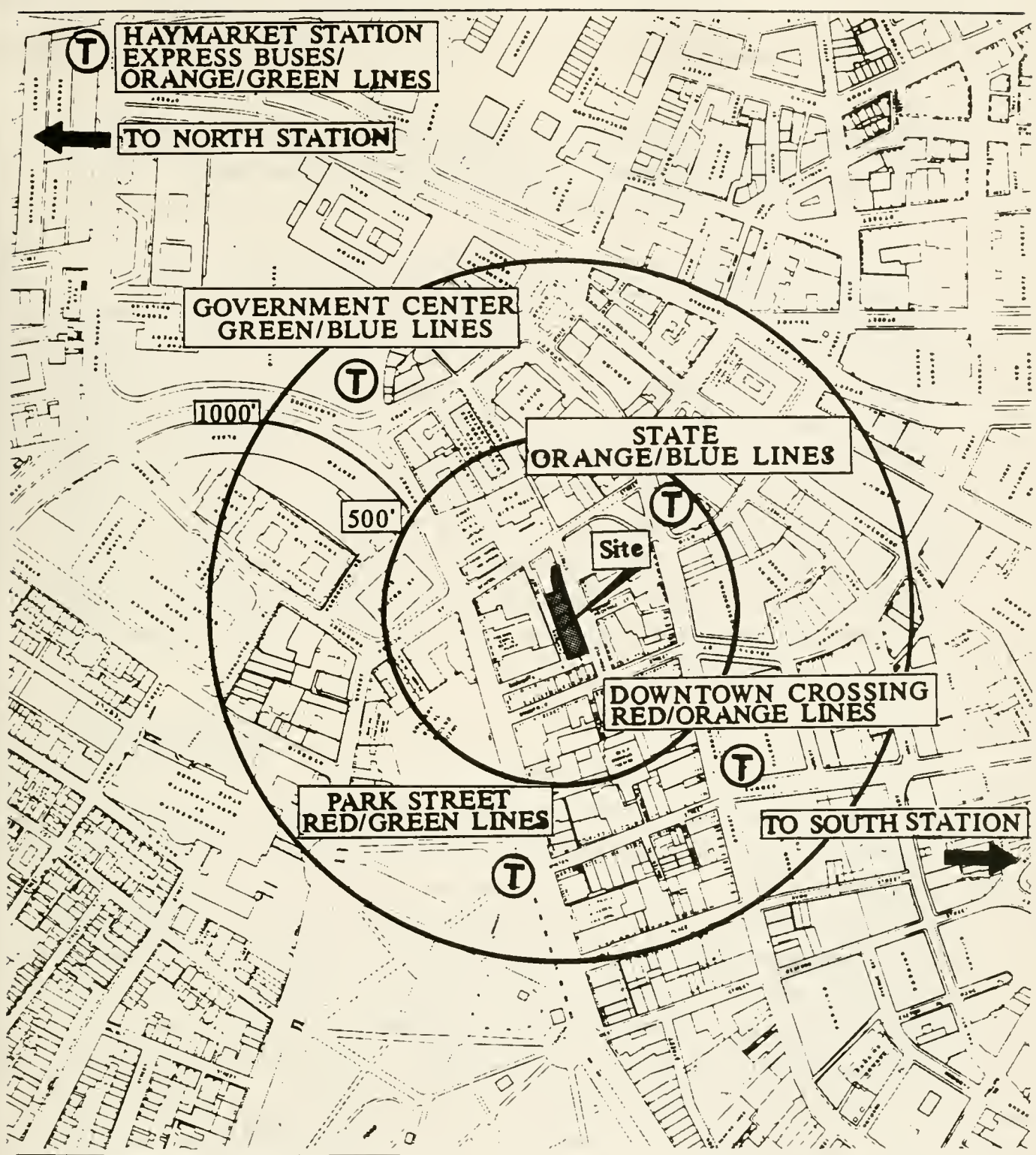
- Of the total time available for parking in the survey zone, 62 percent is used by handicapped and veteran autos, 8 percent by standard private autos, 7 percent by double-parked commercial vehicles, 3 percent by legally-parked commercial vehicles, and about 20 percent is free time, i.e, available for parking. The latter figure represents a near-full condition, since some space is used inefficiently (not striped, blocked by double-parkers, etc.); and
- Vehicle activity is fairly uniform throughout the day for both private autos and commercial vehicles.

Not shown in the tables but observed in the field survey was that only about 17 percent of those with handicapped plates or windshield placards had a visible handicap. This is not entirely conclusive in that certain handicaps may not, in fact, be obvious.

C. PUBLIC TRANSPORTATION

1. Rapid Transit

The project site is within walking distance of all four MBTA subway lines, as shown in Figure 9. The Green Line, which travels north to East Cambridge and west to Allston-Brighton, Brookline and Newton, can be accessed at Park Street and Government Center Stations. The Orange Line, which runs north through Charlestown to the northern suburbs and south through the South End and Roxbury to Jamaica Plain, can be accessed at Downtown Crossing and State Stations. The Blue Line, which runs northeast through East Boston to Revere, is accessible at State and Government Center Stations. The Red Line, which runs northwest to



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Location of
Public
Transportation

Fig. 9

Cambridge and south to Dorchester and Braintree, can be accessed at Park Street and Downtown Crossing Stations. These stations are all located within 500- to 1,000-feet from the site.

Table 5 shows the service frequency and capacity of each rapid transit line. Line capacity is based on car capacity figures used by the MBTA for service planning. While individual cars can physically accommodate more passengers than the planning numbers, loading greater than the planning capacity may cause excessive delays at stations and disrupt the reliability of service. Table 6 compares capacity with existing evening peak hour outbound ridership at each line's peak load point (the location with highest ridership). Overall, the rapid transit system can carry 75,200 riders out of Downtown Boston in the evening peak hour. Actual ridership is below planning capacity on all lines.

2. Bus Service

Four MBTA express bus routes and three local bus routes serve Federal and Franklin Streets within one-quarter mile of the site. All these routes serve areas west of downtown. Their combined capacity is just over 2,200 passengers in the evening peak hour, based on the capacity of 60 passengers per bus used by the MBTA for service planning. Fifteen MBTA express bus routes and three local bus routes serve Haymarket Station. All these routes serve areas north or northeast of downtown. Their combined capacity is just over 4,000 passengers in the evening peak hour. Four private carriers offer suburban commuter bus service at Haymarket, while five private carriers also offer suburban commuter bus service at South Station, which is within one-half mile of the site.

TABLE 5
EXISTING RAPID TRANSIT LINE CAPACITY
PEAK HOUR PEAK DIRECTION*

<u>Line/Segment</u>	<u>Average Cars/ Train</u>	<u>Average Headway (minutes)</u>	<u>Average No. of Trains</u>	<u>Planning Capacity of Car**</u>	<u>Planning Capacity of Line</u>
<u>Red Line/North</u> Ashmont-Alewife Braintree-Alewife	5.08	4.00	15.0	180	13,700
<u>Red Line/South</u> Alewife-Ashmont Alewife-Braintree	5.23	3.33	18.0***	180	17,000
<u>Green Line/West</u> Boston College Cleveland Circle Riverside Huntington Ave.	1.69	1.32	45.5	130	10,000
<u>Green Line/North</u> Lechmere Service	2.00	8.00	7.5	130	1,950
<u>Orange Line/ North-South</u> Oak Grove- Forest Hills	5.57	4.29	14.0	155	12,100
<u>Blue Line</u> Bowdoin-Wonderland	4.00	3.16	19.0	110	8,350

* Green Line/West and Orange Line information is based on observed system performance in fall 1988. All other information is from fall 1988 schedules obtained from the MBTA.

** The MBTA uses these capacity estimates for planning purposes. Heavier loads can be carried and are often observed on the system.

*** Includes three additional six-car Braintree trains during the peak hour.

TABLE 6
EXISTING RAPID TRANSIT CAPACITY AND RIDERSHIP
EVENING PEAK HOUR OUTBOUND

<u>Line</u>	<u>Planning Capacity of Line*</u>	<u>Ridership at Peak Load Point**</u>	<u>Ridership as Percent of Capacity</u>
Red Line/North	13,700	8,100	59
Red Line/South	17,000	12,750	75
Green Line/West	10,000	8,900	89
Green Line/North	1,950	1,250	64
Orange Line/North	12,100	8,900	74
Orange Line/South	12,100	7,650	63
Blue Line/North	8,350	6,250	75

* See preceding table.

** Orange Line/South and Green Line/West ridership figures are taken from independent observations in fall 1988; Red Line/North and Green Line/North riders are estimated from 1986 and 1984 counts, respectively; other ridership data are from spring 1988 MBTA counts.

3. Commuter Rail

Four commuter rail lines begin at North Station, located within three-quarter mile of the site, serving suburban areas to the northwest, north and northeast. Passengers can travel between the site and North Station on foot or via the Orange Line. Five additional commuter rail lines begin at South Station, located within one-half mile of the site and accessible via foot or the Red Line. Four of the South Station lines also stop at Back Bay Station, where direct in-station connections to the Orange Line can be made.

D. PEDESTRIANS

The existing sidewalks within and adjacent to the study area consist of both minor and major pedestrian corridors. Inventory of sidewalk characteristics and pedestrian volumes were compiled as part of the Phase I data collection process.

1. Pedestrian Network

Sidewalks in the area which will provide direct access to the immediate vicinity of the site include Province Street, School Street, Bromfield Street, Tremont Street, Washington Street, and Bosworth Street. The following provides a brief summary of study area sidewalk corridors.

- Tremont Street - a major pedestrian corridor connecting the Boston Common and Park Street MBTA Station to Government Center and the Government Center MBTA Station. Sidewalks on both sides of Tremont Street are fairly wide (12- to 13-feet) and provide comfortable walking space for moderate to heavy pedestrian flows. A portion of the popular Freedom Trail is located on the sidewalk on the west side of Tremont Street within the study area.
- Washington Street - a major pedestrian corridor connecting Downtown Crossing and the Downtown Crossing MBTA Station with the Government Center, Dock Square, and Faneuil Hall area. Sidewalks on both sides of Washington Street range from 14- to 20-feet in width and provide comfortable walking space for moderate to heavy pedestrian flows. In addition, a portion of the Freedom Trail is located on both sides of Washington Street within the study area.

- School Street and Beacon Street - a major pedestrian connection between the State House and Beacon Hill area and the State MBTA Station and Financial District. Sidewalks on both sides of the street range from 6- to 12-feet in width and provide adequate width for moderate pedestrian flows. A portion of the Freedom Trail is located on the north side of School Street.
- Bromfield Street - a major pedestrian corridor connecting Tremont Street to Washington Street. Sidewalks are generally 6- to 8-feet in width, enough for low to moderate pedestrian volumes.
- Province Street - a minor pedestrian corridor which connects Bromfield and School Streets. Sidewalks are generally 6- to 8-feet in width, enough for low to moderate pedestrian volumes.
- Bosworth Street - a minor pedestrian connection between Province Street and Tremont Street. The street as well as the sidewalks serve as pedestrian walkways. While Tremont Street is at a higher elevation than Province Street, steps are provided at the east end of Bosworth Street allowing for a pedestrian connection to Province Street.

In addition to these important pedestrian corridors, there are a number of sites within or near the study area that attract or generate pedestrian traffic. These sites include several parks and recreational areas, burial grounds, churches, public transportation stations, government offices, and large office buildings. Some of the specific sites which generate significant pedestrian traffic include the following:

- Burial Grounds
 - Granary Burial Ground
 - Kings Chapel Burial Ground
- Churches
 - Kings Chapel
 - Park Street Church
 - St. Paul's Cathedral
 - Tremont Temple Baptist Church
- Government Offices and Halls
 - Boston City Hall
 - Commonwealth of Massachusetts State House
 - Suffolk County Court House
- Historic Buildings
 - Old Boston City Hall
 - Old South Meeting House
- Parks and Recreation
 - Boston Common
 - Boston Five Park
- Public Transportation Stations
 - Downtown Crossing Station
 - Government Center Station
 - Park Street Station
 - State Station
- Large Office Buildings
 - One Beacon Street
 - Boston Company Building
 - New England Merchants Bank Building
 - Shawmut Bank Building
 - Center Plaza

- Retail Centers
 - Downtown Crossing

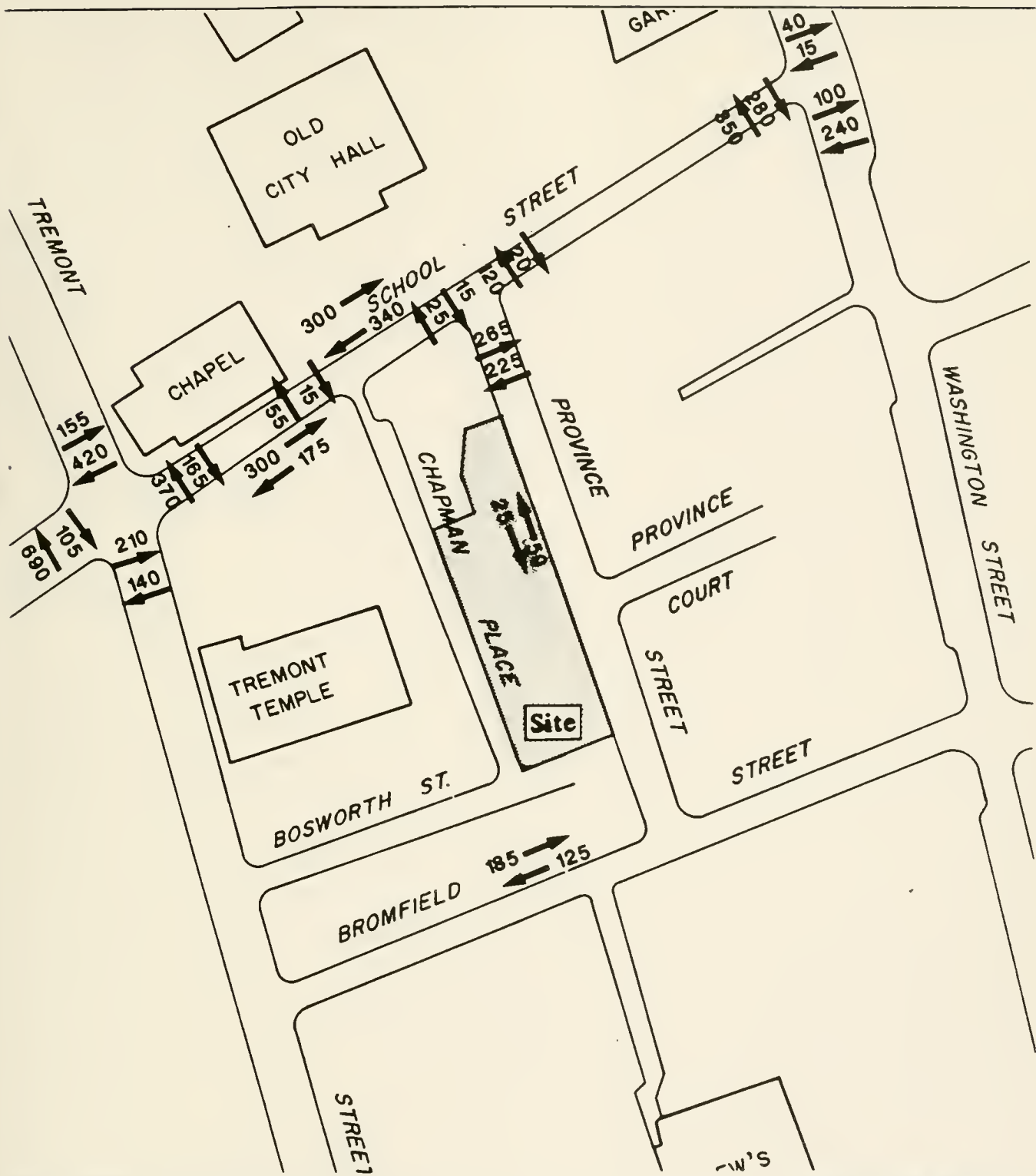
2. Pedestrian Volumes

Pedestrian volumes were counted in the project area during August and September of 1988. One supplementary count was also made in April of 1989. These counts focused on the level of pedestrian activity during the morning, midday and evening peak periods (7:00 to 9:00 AM, 11:00 AM to 1:00 PM and 4:00 to 6:00 PM) at the following locations:

- Sidewalk Faces
 - Province Street, west sidewalk
 - Bromfield Street, north sidewalk
 - School Street, south and north sidewalks
- Intersections
 - Tremont Street at Beacon Street at School Street
 - School Street at Province Street
 - School Street at Washington Street

Existing morning, midday and evening peak hour pedestrian volumes are shown in Figures 10, 11, and 12, respectively. Volumes shown parallel to roadways are sidewalk volumes by direction for the sidewalk faces identified above, i.e., Province Street, west sidewalk only; Bromfield Street, north sidewalk only; and School Street, north and south sidewalks.

As seen in the figures, the highest pedestrian flows on a majority of the sidewalk were observed during the midday peak period. The morning peak period pedestrian flows were generally observed to be the lowest.

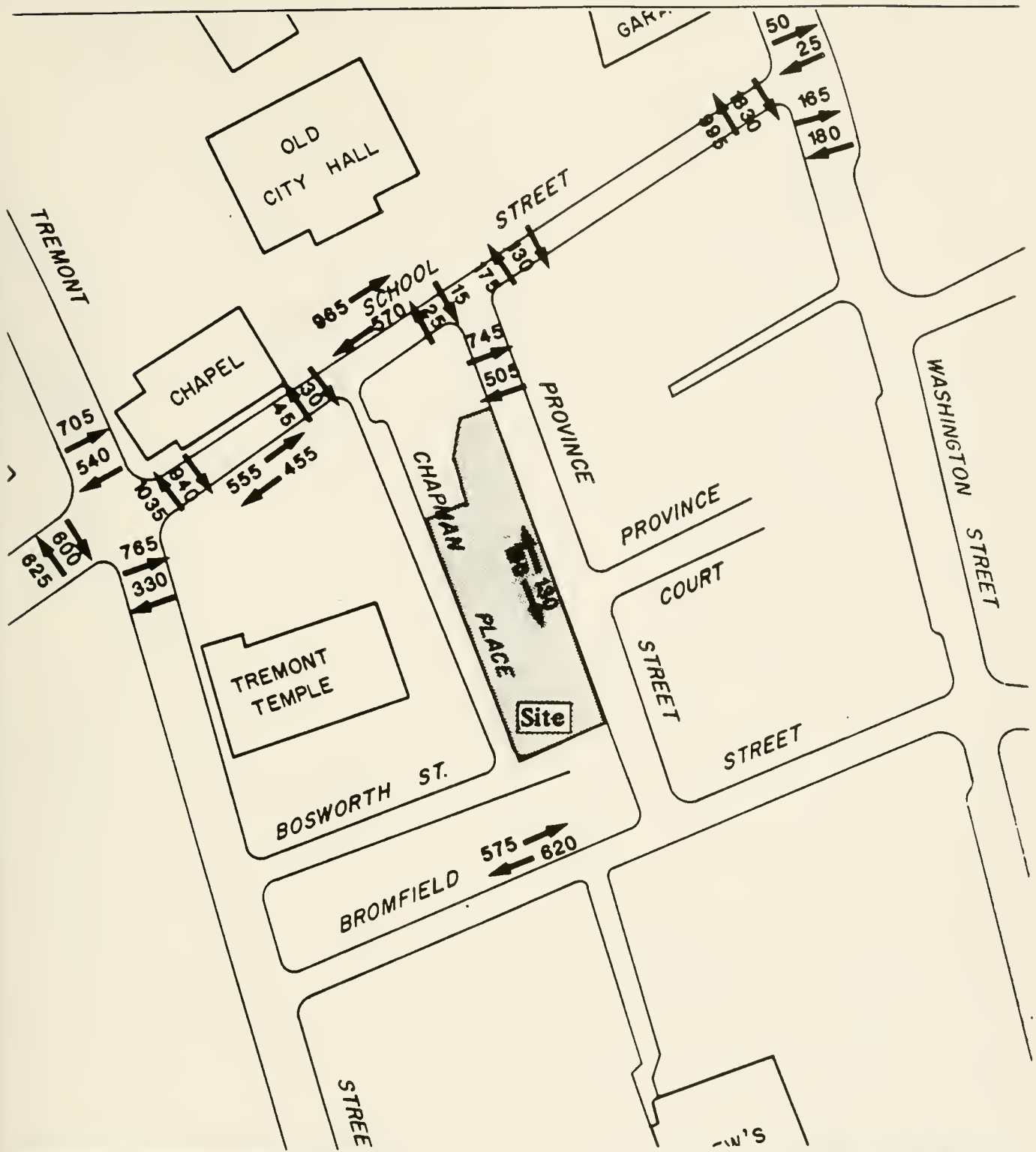


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Not to Scale

Fig. 10

Existing
AM Peak Hour
Pedestrian Volumes

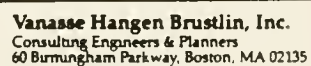


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Existing
Midday Peak Hour
Pedestrian Volumes

Not to Scale

 Fig. 11



Not to Scale

Fig. 12

As mentioned previously, traffic control officers were observed monitoring the intersections of Tremont Street, Beacon Street, and School Street, Tremont Street and Park Street, and Washington Street and School Street. The traffic control officers monitored and controlled the flow of vehicular and pedestrian traffic as necessary. The officers were effective in controlling pedestrian flows so that the pedestrians crossed major and minor streets during the appropriate signal phases and did not interfere with vehicular traffic.

PROBABLE PROJECT IMPACTS

To assess the impacts of the 45 Province Street project on the transportation system within the study area, travel demands were estimated for the project and were then distributed over the various transportation networks (roadway, transit, and sidewalk). Appropriate criteria for measures of effectiveness were then selected and used to define traffic conditions with the project completed when compared to existing and future conditions without the proposed development.

A. TRAFFIC

1. Project-Generated Traffic

To assess the impact of the proposed 45 Province Street development, separate travel demand estimates by land use (office and retail) and by the type of trip (work and non-work) were made. This approach uses daily person-trip generation rates for office and retail uses for both trip types. The day-care facility provided in the revised build program was not considered a significant trip generator because of its small size and its intended use primarily for building tenants. Mode split factors, peak hour factors, and vehicle occupancy rates were then applied to the daily person-trip rates to obtain peak hour vehicle-trip and transit-trip generation rates. Tables 7 and 8 summarize trip rates and modal splits used in the analysis and the resultant new person-trips generated by the project (total trips less those generated by current on-site uses). The trip rates and mode splits applied to this project are those used in Access Plans for several other projects in the financial district, except that, for work trips, the transit share was reduced from 70 percent to 65 percent while the walk share was increased from 0 percent to 5 percent, as requested by the Boston Transportation Department

at a meeting held on February 9, 1988, to discuss BTD comments on the Draft Project Impact Report for the nearby 64-74 Franklin Street project.

TABLE 7
NEW DAILY PERSON TRIPS

	<u>Office</u>			<u>Retail</u>		
	<u>In</u>	<u>Out</u>	<u>Total</u>	<u>In</u>	<u>Out</u>	<u>Total</u>
<u>Generation Rates*</u>						
Work	4.40	4.40	8.80	2.75	2.75	13.50
Non-Work	<u>2.35</u>	<u>2.35</u>	<u>4.70</u>	<u>16.40</u>	<u>16.40</u>	<u>32.80</u>
TOTAL	6.75	6.75	13.50	19.15	19.15	38.30
<u>Generated Trips**</u>						
Work	646	646	1,292	38	38	76
Non-Work	<u>345</u>	<u>345</u>	<u>690</u>	<u>228</u>	<u>228</u>	<u>456</u>
TOTAL	991	991	1,982	266	266	532

* Person-trips per 1,000 square feet.

** Total trips per day.

TABLE 8
NEW DAILY PERSON TRIPS BY MODE

	<u>Office</u>			<u>Retail</u>		
	<u>Auto</u>	<u>Transit</u>	<u>Walk</u>	<u>Auto</u>	<u>Transit</u>	<u>Walk</u>
<u>Percentages</u>						
Work	30.0	65.0	5.0	30.0	65.0	5.0
Non-Work	27.5	57.5	15.0	27.5	32.5	40.0
<u>Daily Person-Trips</u>						
Work	388	840	64	22	50	4
Non-Work	<u>190</u>	<u>397</u>	<u>103</u>	<u>126</u>	<u>148</u>	<u>182</u>
TOTAL	578	1,237	167	148	198	186

It should be noted that, in response to city comments on the DPIR relative to the appropriateness of the modal split assumptions used, additional sources of information were researched which validate these assumptions. These sources include the following:

- Modal shares estimated for Boston's 1985 downtown peak hour include 25 percent auto, 65 percent transit, and 10 percent walk/other (Source: "Transportation, A Framework for Improved Access," BTB, February 1986).
- Mode use percentages for work trips obtained from a 1987 building survey conducted by Vanasse Hangen Brustlin at 200 Portland Street were 27.5 percent auto, 69.3 percent transit, and 3.2 percent walk/other.
- Modal shares for five buildings surveyed in downtown Boston as part of the BTB's report "Parking in Central Boston" averaged 35.5 percent auto, 59.4 percent transit, and 5.1 percent other (work trips). Figures for one of the buildings (Shawmut Bank) were 26.7 percent, 67.3 percent, and 6.0 percent, respectively.
- Actual modal percentages for work trips surveyed at 90 Canal Street and 225 Friend Street by Vanasse Hangen Brustlin, Inc. in 1988 were 31.9 percent auto, 60.6 percent transit, and 7.5 percent walk (averages for both buildings).
- A March 1979 BRA Office Tenant Survey referenced in the BTB's "Parking in Central Boston Report" indicated the following percentages of work trips by auto: Financial District, 32 percent; Government Center, 30 percent; Midtown, 33 percent; all areas, 34 percent.

- A 1980 CSI survey of downtown Boston buildings for an evaluation of Downtown Crossing resulted in a wide spread of percent by auto, ranging from 14.3 percent to 44.4 percent. The average of all thirty buildings surveyed, however, was 23.7 percent, with 24 of the 30 buildings less than 30.0 percent.
- A New England Telephone employee survey (September 1986) used for the 125 High Street project indicated an average transit mode split in four of their facilities of 68.4 percent. The range extended from 65.2 percent to 78.0 percent.
- The traffic report for the Marketplace Center project cited the "following specific data describing modal splits currently experienced in Downtown Boston": Jordan Marsh employees - 15 percent auto, 71 percent transit, 12 percent walk; First National Bank - 73 percent transit; State Street Bank - 68 percent transit; JFK Building - 57 percent transit.

Table 9 summarizes anticipated vehicle occupancy rates for those trips arriving by automobile. The rates are based primarily on information reported in the 1983 study, Parking in Central Boston: Meeting the Access Needs of a Growing Downtown.

TABLE 9
VEHICLE OCCUPANCY FACTORS

<u>Trip Type</u>	<u>Use</u>	
	<u>Office</u>	<u>Retail</u>
Work	1.8	1.4
Non-Work	1.4	1.9

Applying the projected occupancy rates to the person-trips arriving by auto projected in Table 8 results in a total estimate of 433 new daily vehicle-trips (Table 10). These include employee-related trips (commuting and non-commuting), visitors, taxis and delivery vehicles. The 433 total trips are distributed equally between inbound and outbound trips.

TABLE 10
NEW DAILY VEHICLE TRIPS

<u>Trip Type</u>	<u>Use</u>		<u>Total</u>
	<u>Office</u>	<u>Retail</u>	
Work	215	16	231
Non-Work	<u>136</u>	<u>66</u>	<u>202</u>
TOTAL	351	82	433

● Peak Hour Trip Generation

Trips occurring during the peak commuter hours are of greater concern than the total daily trips, since that is when the greatest stress is placed upon the transportation system. It is these peak periods which are used to evaluate the performance of the transportation system. The peak hour percentages shown in Table 11 were used to derive the number of new daily trips occurring during the peak hours. The results of this calculation are presented in Table 12. Table 13 shows demand by direction, mode, and time period.

TABLE 11
PERCENTAGES OF DAILY TRIPS
DURING PEAK HOURS BY TYPE AND DIRECTION*

	Work		Non-Work	
	<u>Morning</u>	<u>Evening</u>	<u>Morning</u>	<u>Evening</u>
<u>Office</u>				
Arrivals	55	2	10	2
Departures	1	55	1	10
<u>Retail</u>				
Arrivals	10	10	1	5
Departures	1	20	1	10

* From Copley Place Final Environmental Report and Environmental Impact Statement (EIR and EIS).

TABLE 12
NEW PEAK HOUR TRIPS BY MODE
(PEAK DIRECTION)

	Morning Inbound			Evening Outbound		
	<u>Auto*</u>	<u>Transit**</u>	<u>Walk</u>	<u>Auto*</u>	<u>Transit**</u>	<u>Walk</u>
<u>Office</u>						
Work	59	231	18	59	231	18
Non-Work	7	20	5	7	20	5
<u>Retail</u>						
Work	1	3	0	2	5	0
Non-Work	<u>0</u>	<u>1</u>	<u>1</u>	<u>3</u>	<u>7</u>	<u>9</u>
TOTAL	67	255	24	71	263	32

* Vehicle-trips.

** Person trips on all forms of public transportation.

TABLE 13
NEW PRODUCT TRIPS BY MODE

	<u>Auto*</u>	<u>Transit**</u>	<u>Walk</u>
Daily	433	1,435	354
<u>Morning Peak Hour</u>			
In	67	254	24
Out	<u>2</u>	<u>7</u>	<u>2</u>
TOTAL	69	261	26
<u>Evening Peak Hour</u>			
In	6	19	6
Out	<u>71</u>	<u>263</u>	<u>33</u>
TOTAL	77	282	39

* Vehicle trips

** Person trips on all forms of public transportation.

● Delivery Vehicles and Taxis

Some portion of the total daily vehicle trips generated by the project will consist of taxi and delivery vehicle-trips. Delivery vehicles are more often single-unit, two-axle vans than large tractor-trailers. Table 14 summarizes the net increase in expected delivery vehicle traffic for the project.

TABLE 14
NEW DAILY DELIVERY VEHICLE ARRIVALS

	<u>Office</u>	<u>Retail</u>	<u>Total</u>
Arrivals per 1,000 square feet*	0.21	0.24	
Average daily arrivals	30.8	3.3	34.1

* Based on Copley Place Final EIR and EIS.

The project would generate approximately three delivery vehicle arrivals per hour, assuming a constant distribution over a 10-hour business day. Since each delivery vehicle must arrive and depart, approximately six new delivery vehicle trips per hour are expected, on average.

Taxi trips will also constitute a portion of the total daily vehicle-trips generated. The estimated average number of new daily taxi trips is shown in Table 15. An average of approximately 18 additional taxi arrivals per day are expected to be generated.

TABLE 15
NEW DAILY TAXI ARRIVALS

	Generation Rate*	Taxi Arrivals
Office and Retail	0.75 Arrivals/ 100 person-trips	19

* Based on Highway Research Board, NCHRP Report No. 62, Urban Travel Patterns for Hospitals, Universities, Office Buildings and Capitols, 1969.

2. Background Traffic Growth

To assess future conditions, it is necessary not only to forecast project-related traffic increases, but also to predict increases in background traffic. Growth in background traffic is a function of other development activity expected within the area. This growth can be projected by the application of a generalized growth factor or by the assessment of specific development proposals. For this analysis, the projection of background or No-Build traffic (i.e., future traffic without the 45 Province Street development) was based on the assessment of other

specific development proposals projected to be completed by 1991, the year when the proposed development is expected to be fully occupied.

Table 16 lists the projects included in the development of the 1991 No-Build networks and the projected uses for each development.

TABLE 16
1991 BACKGROUND DEVELOPMENT

Development	Size	Use
64-74 Franklin Street	33 KSF* 1 KSF	Office Retail
15 New Chardon Street	47 KSF	Office
73 Tremont Street	276 KSF 20 KSF	Office Retail
110-120 Tremont Street	336 KSF	Office
Temple Place Project	220 KSF	Office
Parkside West	94 Units 2 KSF	Residential Retail
Parkside East	127 Units 3 KSF	Residential Retail
Parkside Mason	52 Units 2 KSF	Residential Retail
20-21 Custom House Street	223 KSF 17 KSF	Office Retail
75 State Street	685 KSF 15 KSF	Office Retail
125 Summer Street	482 KSF 13 KSF	Office Retail
99 Summer Street	285 KSF	Office
101 Arch Street	340 KSF 46 KSF	Office Retail
125 High Street	1,356 KSF 34 KSF	Office Retail
150 Federal Street	475 KSF 10 KSF	Office Retail
101 Federal Street	497 KSF 25 KSF	Office Retail
International Place	1,700 KSF 100 KSF	Office Retail

* Thousand square feet.

When applicable, traffic volumes presented in previous environmental impact reports and environmental assessments were utilized. Where volumes were not available from other sources, the trip generation assumptions described earlier were applied to the projected uses for each identified background development to obtain projected vehicle trips.

3. Trip Distribution

The new vehicle-trips projected to be generated by the proposed 45 Province Street project were distributed to the transportation system according to the trip distribution pattern shown in Table 17. This is the same distribution pattern used in the Access Plan for the nearby 64-74 Franklin Street Project. Where possible, background project trip distributions and assignments were taken from existing environmental assessment reports.

TABLE 17
PROJECT TRIP DISTRIBUTION

<u>Direction</u>	<u>Percent</u>
Northeast	14
North	14
Northwest	9
West	17
Southwest	22
Southeast	<u>24</u>
TOTAL	100

Due to the roadway circulation patterns in and around the study area, all automobile traffic entering the site will do so via School Street eastbound to Province Street. Taxi and truck traffic is allowed to enter the site via Franklin Street to

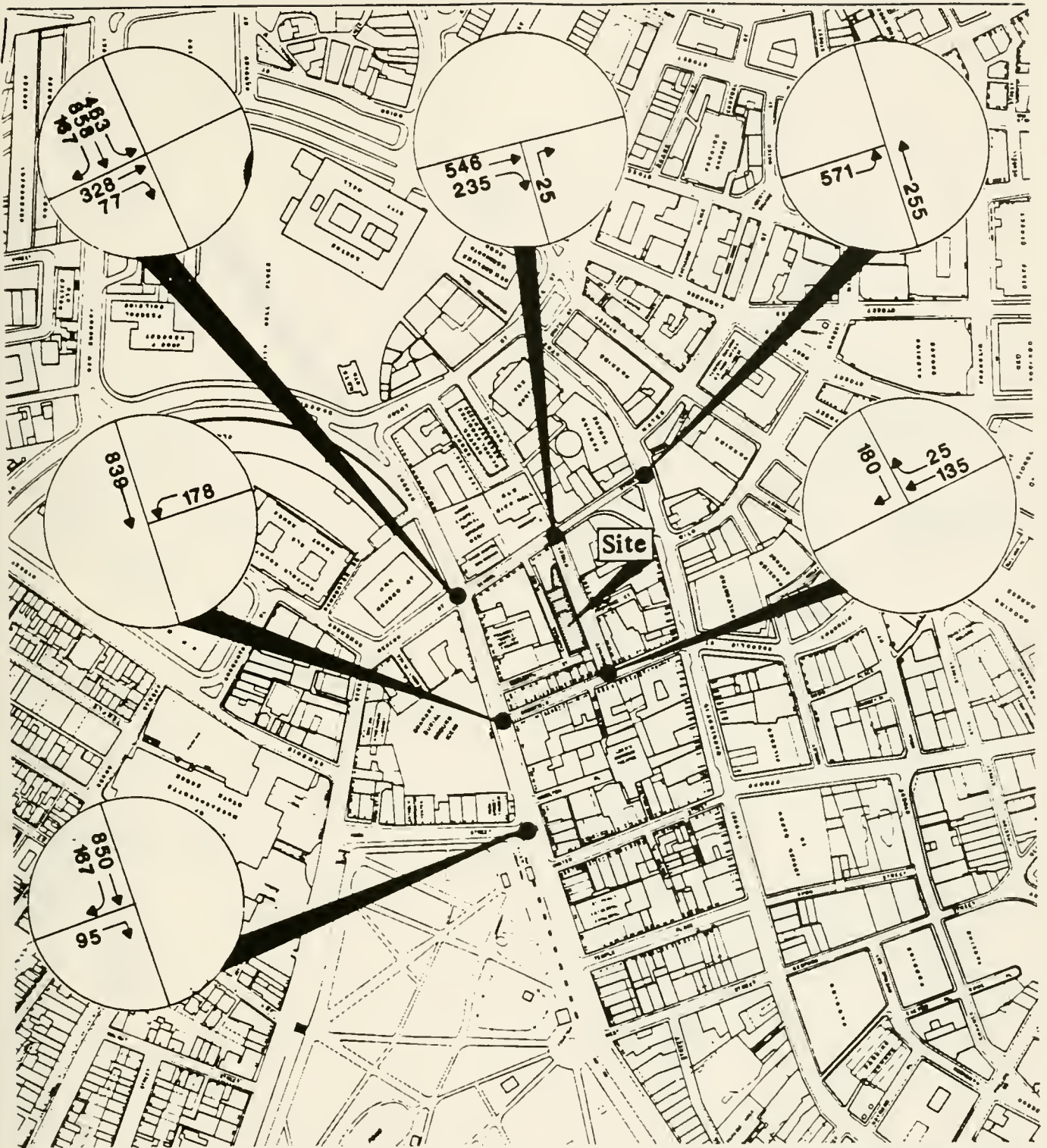
Bromfield Street to Province Street between the hours of 7:00 PM and 2:00 AM and 7:00 PM and 11:00 AM, respectively, even though these time restrictions have been relaxed somewhat during the recent construction work in the Downtown Crossing area related to MBTA transit system improvements.

Projected 1991 No-Build volumes for the morning and evening peak hours are shown in Figures 13 and 14, respectively. Build volumes for the morning and evening peak hours are shown in Figures 15 and 16, respectively. It should be noted that the Build networks were developed under the assumption that everyone who wants to drive to the project would be able to do so regardless of parking availability. This is a conservative approach in terms of vehicle trips in those areas where actual parking supply may constrain demand. This issue is discussed further in the "Level of Service Analysis" section.

4. Intersection Level of Service Analysis

● Analysis Procedures

- Signalized Intersections - Signalized intersections within the study area were evaluated using a computer program (CINCH) based on the 1985 Highway Capacity Manual procedures, as published by the Transportation Research Board in Special Report 209, Washington, D.C., 1985. Signalized intersection analysis must consider a wide variety of prevailing conditions, including the amount and distribution of traffic movements, traffic composition, geometric characteristics, and the details of intersection signalization. Critical to the evaluation are the concepts of capacity and level of service (LOS). Unlike previous methodologies, these two concepts are not simply related, but must be considered together to evaluate the overall operation of a signalized intersection.

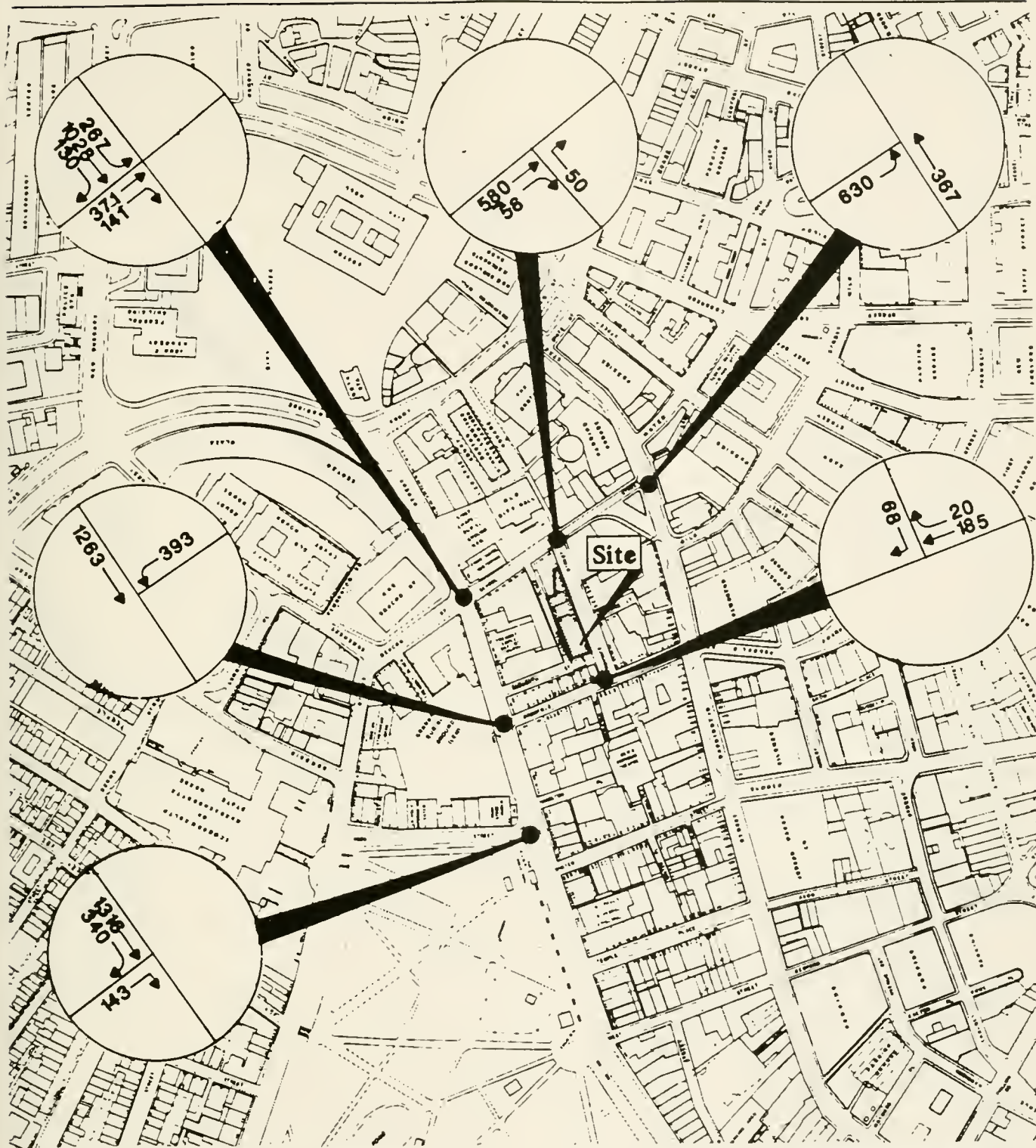


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0 200 400
 SCALE IN FEET

1991 No Build
 AM Peak Hour
 Traffic Volumes

Fig. 13

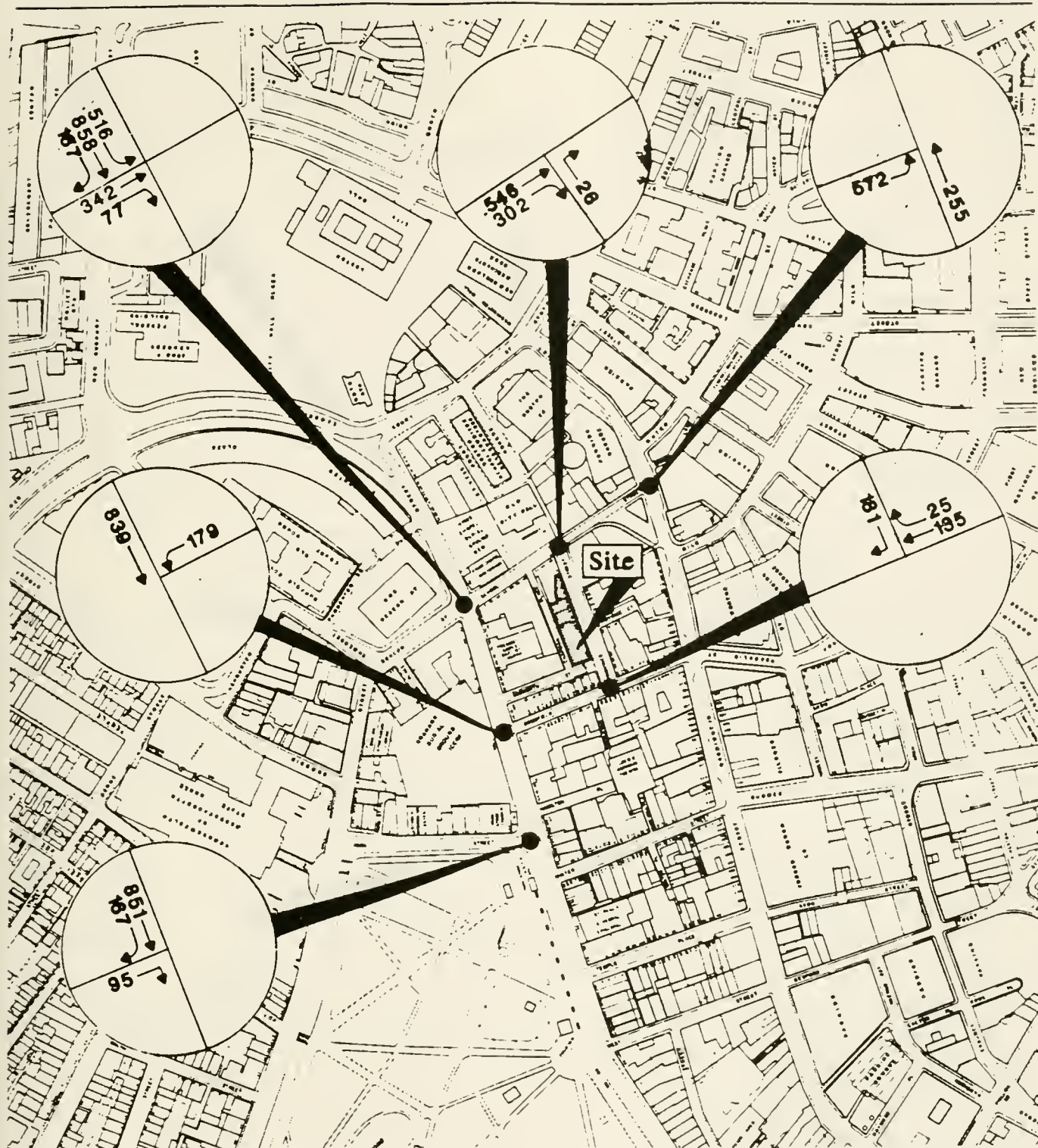


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200 400
SCALE IN FEET

1991 No Build
PM Peak Hour
Traffic Volumes

Fig. 14

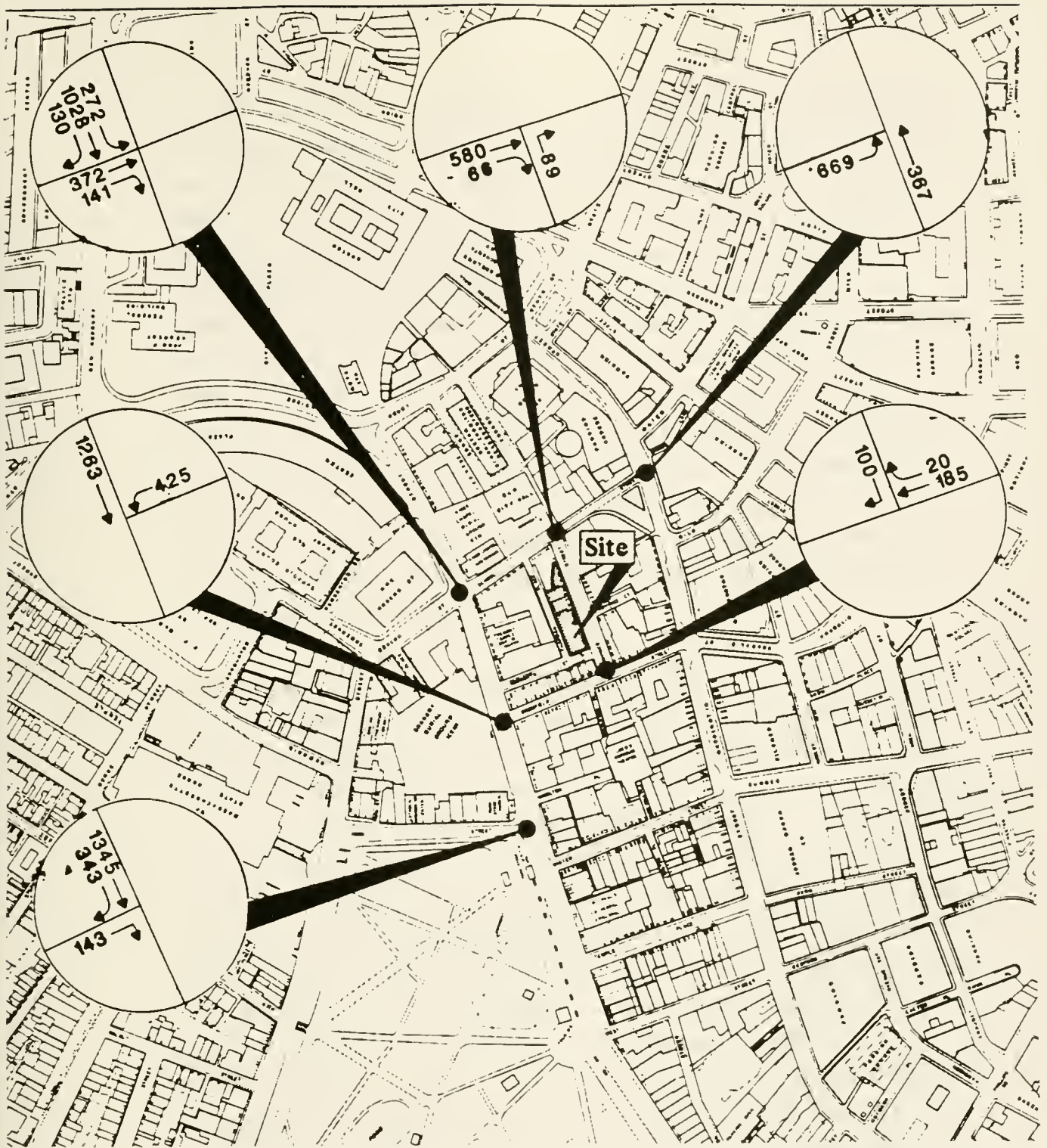


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0 200 400
SCALE IN FEET

1991 Build
AM Peak Hour
Traffic Volumes

 Fig. 15



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0 200 400
SCALE IN FEET

1991 Build
PM Peak Hour
Traffic Volumes

Fig. 16

In this approach, capacity at intersections is defined for lane groups, rather than for approaches or the intersection as a whole. A lane group may be a single movement; a group of movements, or an entire approach and is defined by the geometry of the intersection and the distribution of movements over the various lanes. Capacity (C) of a lane group is calculated as the maximum rate of flow which may pass through the intersection under prevailing traffic, roadway and signalization conditions. The rate of flow (V) is generally measured or projected for a peak 15-minute period, and capacity is stated in vehicles per hour. Capacity analysis of intersections involves the computation of volume-to-capacity (v/c) ratios for each lane group, from which an overall intersection v/c may be derived.

Generally, when two opposing flows are moving during a signal phase, one of the lane groups will require more green time than another in order to process all of its volume. This would be defined as a "critical" lane group for the subject signal phase. The concept of a critical v/c ratio is used to evaluate the intersection as a whole, considering only the critical lane groups - those that have the greatest demand for green time within each signal phase. This procedure assumes that green time has been appropriately allocated. Thus, it is possible to have an overall intersection v/c of less than 1.00 (under-capacity), but still have individual movements be oversaturated within the signal cycle if the green time has not been appropriately allocated to the various approaches.

The other major concept in signalized intersection analysis is level of service, which is defined in terms of delay. Delay represents a measure of driver discomfort, frustration, fuel consumption and lost time. Specifically, level of service delay criteria are stated in average stopped delay (in seconds) per vehicle for a peak 15-minute analysis period. The criteria are presented in Table 18.

TABLE 18
LEVEL-OF-SERVICE DELAY CRITERIA FOR
SIGNALIZED INTERSECTIONS

<u>Level of Service</u>	<u>Stopped Delay Per Vehicle (sec)</u>
A	≤ 5.0
B	5.1 to 15.0
C	15.1 to 25.0
D	25.1 to 40.0
E	40.1 to 60.0
F	> 60.0

Delay is a complex measure which depends upon a number of variables, listed in decreasing order of importance: the quality of signal progression; the cycle length; the allocation of green times; and, v/c ratios. Of note is that v/c ratios, of all the factors cited, have the least effect on delay. Thus, for any given v/c ratio, a range of delay values (and, therefore, level of service) may result. Conversely, for a given level of service, the v/c ratio may lie anywhere within a broad range.

For the reasons stated above, both capacity and level of service must be carefully examined when analyzing a signalized intersection. The designation of an approach as operating at LOS F does not automatically imply that the entire intersection, approach or lane group is overloaded, nor does a level of service in the A to E range automatically indicate that there is unused capacity available. Simply stated, v/c ratios are a measure of a driver's perception and experience at a particular intersection. Together these two parameters are used to evaluate signalized intersection performance.

- Unsignalized Intersections - Level of service for unsignalized intersections is based on the number of acceptable gaps available in the major street traffic flow that may be utilized by minor street vehicles. The criteria shown in Table 19 are based on the available reserve (or unused) capacity (measured in passenger cars per hour) for the minor street movement in question. The table also includes a qualitative index of delay to minor street traffic.

TABLE 19
LEVEL-OF-SERVICE CRITERIA FOR
UNSIGNALIZED INTERSECTIONS

<u>Reserve Capacity</u>	<u>Level of Service</u>	<u>Expected Delay to Minor Street Traffic</u>
> 400	A	Little or no delay
300-399	B	Short traffic delays
200-299	C	Average traffic delays
100-199	D	Long traffic delays
0-99	E	Very long traffic delays

Source: Highway Capacity Manual, Special Report 209,
Transportation Research Board, Washington, D.C., 1985.

● Level-of-Service Analysis

Signalized intersection analyses were conducted for the six study area intersections using the analysis procedures previously described for Existing, No-Build and Build conditions in both the morning and evening peak hours. The results of these analyses are listed in Table 20 in terms of volume-to-capacity ratios (v/c) and delay or reserve capacity, and level of service (LOS) for each intersection as a whole.

Due to the current proposed garage capacity of 440 spaces under Option A and 140 parking spaces under Option B, all existing and future traffic generated by the site will be accommodated at the site under Option A but not Option B. None of the existing traffic will travel to or from the site under Option B. Further discussion on the implication of this on the analysis results is presented at the end of this section.

As seen in Table 20 under Existing Conditions, all intersections operate at LOS C or better during both the morning and evening peak hours.

In the morning peak hour, under 1991 No-Build conditions, none of the six intersections analyzed are anticipated to decline in level of service. During the evening peak hour, under No-Build conditions, three of the six intersections analyzed are anticipated to experience a decline in level of service. The intersections of Tremont Street and Bromfield Street and Tremont Street and Park Street are projected to decline in LOS from LOS B to LOS C, while the intersection of Washington Street and School Street is projected to decline from LOS C to LOS D.

TABLE 20
VEHICLE LEVEL-OF-SERVICE SUMMARY

Location	Morning Peak Hour						Evening Peak Hour					
	Existing V/C* Delay** LOS**	Existing Delay	No-Build V/C Delay LOS	Build V/C Delay LOS	Existing V/C Delay LOS	Build V/C Delay LOS	Existing V/C Delay LOS	No-Build V/C Delay LOS	Build V/C Delay LOS	Existing V/C Delay LOS	No-Build V/C Delay LOS	Build V/C Delay LOS
Signalized												
Tremont Street/ School Street/ Beacon Street	0.47 16 C		0.56 18 C	0.58 19 C	0.47 16 C	0.53 17 C	0.47 16 C	0.53 17 C	0.53 17 C	0.47 16 C	0.53 17 C	0.53 17 C
Tremont Street/ Bromfield Street	0.37 8 B		0.39 8 B	0.39 8 B	0.49 10 B	0.66 19 C	0.49 10 B	0.66 19 C	0.68 25 D			
Tremont Street/ Park Street	0.37 12 B		0.38 12 B	0.38 12 B	0.45 13 B	0.54 15 C	0.45 13 B	0.54 15 C	0.55 15 C			
Washington Street/ School Street	0.48 11 B		0.51 11 B	0.51 11 B	0.53 22 C	0.60 32 D	0.53 22 C	0.60 32 D	0.63 31 D			
Unsignalized												
School Street/ Province Street	555 A	480 A	451 A	555 A	490 A	454 A	555 A	490 A	454 A			
Bromfield Street/ Province Street	899 A	759 A	758 A	819 A	816 A	789 A	819 A	816 A	789 A			

* Volume-to-capacity ratio.

** Average stopped delay per vehicle in seconds.

*** Level of service for entire intersection.

+ Level of service for critical movement (right turn from minor street to major street).

The addition of project-related traffic to the morning and evening peak hour 1991 No-Build networks is anticipated to cause a decline in level of service at only the Tremont Street and Bromfield Street intersection in the evening peak hour, where it will change from LOS C to LOS D.

Although level of service is currently acceptable at all locations and is projected to remain so through 1991 Build conditions, several operational problems were noted during the analysis phase. Under No-Build conditions, while the intersection of Tremont Street and Bromfield Street is anticipated to operate at LOS C, the Bromfield Street approach is anticipated to operate at LOS E. Under the Build condition this approach is anticipated to operate at LOS F. Moderate queue lengths were observed on Bromfield Street during the existing evening peak hour. The addition of background traffic will result in longer queues on Bromfield Street. The long delays on the Bromfield Street approach occur because the signals at Beacon Street, Bromfield Street and Park Street are generally coordinated to provide progression along Tremont Street. This coordination works well for vehicles traveling southbound on Tremont Street where there is a heavy through movement. This coordination is not optimal for traffic flow on the above-mentioned side streets and especially not on Bromfield Street. The analyses were rerun with "optimal" timings for these intersections to identify whether they could be improved. In all cases, reduced delay values were calculated. One must weigh the benefits, however, of improved performance at individual intersections versus better system operation on key arterial streets.

A similar condition occurs at the intersection of Washington Street and School Street during the evening peak hour. Under existing conditions, while the intersection operates at LOS C, the Washington Street approach operates at LOS E. Under the 1991

No-Build and Build conditions, the Washington Street approach is anticipated to operate at LOS F. Long delays occur on the Washington Street approach because of the signal timing at the Washington Street and School Street intersection. Currently, approximately 66 seconds is allocated to the 550 vehicles turning left from School Street to Washington Street while only about 17 seconds is provided for 330 vehicles traveling north on Washington Street. Assuming that the signal timing remains the same in the future, longer delays are anticipated.

Finally, it should be noted that the results reported above are based on conditions which occur most of the time. There may be times when more adverse conditions occur (e.g., queuing, drop-off and pick-up activity, parking maneuvers, etc.) which would have a negative effect on these results. Even then, however, these conditions usually tend to dissipate relatively quickly and revert to normal operation.

In response to a city of Boston comment on the draft TAP, Table 21 is provided below which compares traffic generated by the existing parking garage and lot on the project site to traffic generated by the proposed project under Option A (440 parking spaces) and Option B (140 parking spaces). This is provided to expand on the above discussion and to quantify the sensitivity of the traffic analysis results with respect to parking availability options for this project. The "Existing" column is based on counts taken for the present garage and lot on Province Street. The "Build/Option A" column adds estimated project traffic to the existing demand since, as shown later, enough parking spaces are provided in Option A to satisfy the current usage level of the existing parking garage and lot, if not the full theoretical usage. The "Build/Option B" column represents about 90 percent of the estimated project demand volumes and none of the current parking activity on the site,

since these are the demand levels that will be accommodated by the Option B garage capacity. Since the traffic results summarized in Table 20 represent the Option A scenario and there is very little difference in results between even the Full Build and Existing conditions, it is clear that an analysis of the Option B scenario, which has about the same peak hour volume levels as the existing case, would not be significantly different than conditions already analyzed.

TABLE 21
SITE-GENERATED TRAFFIC COMPARISON

<u>Time Period</u>	<u>Existing</u>	<u>Build</u>	
		<u>Option A*</u>	<u>Option B**</u>
Daily	650	1,083	394
Morning Peak Hour	50	119	63
Evening Peak Hour	70	147	70

* 440 parking spaces.

** 140 parking spaces.

5. Planned Roadway Improvements

The Boston Transportation Department (BTD) is actively involved in a program to improve the signal system in the downtown area. The program is jointly funded by the Massachusetts Department of Public Works (MDPW) and the Federal Highway Administration. The goal is to centralize computer control of all signal subsystems. Existing controls are scheduled to be upgraded using real-time detection of traffic volume and density on selected roadway links. Based on measured activity, one of several timing plans will then be brought into use. Phase 1 of this effort includes 233 signals and encompasses the Downtown, Financial District and Back Bay, and includes the study area.

Testing of the Phase 1 system is scheduled to begin in 1988. Signal improvements in the study area are expected to be completed and in operation in early 1990.

B. PARKING

1. Supply

The 45 Province Street project includes the provision of below-grade parking under the proposed building. Two options for parking were explored. Option A proposed a seven-level below-grade parking facility beneath the site and extending under both Chapman and Province Streets. This seven-level facility is now proposed to provide approximately 440 parking spaces through a valet parking system employed during periods of peak demand. Option B proposed a four-level below-grade parking facility under the building only. This four-level facility would provide approximately 140 parking spaces, also using a valet system. Currently, 305 parking spaces are provided on the site (276 spaces in the parking garage and 29 parking spaces in a small adjacent parking lot). Access to and from the garage will be via a ramp located on Province Street.

2. Demand

As shown in Table 21, the 433 new daily vehicle trips generated by the 45 Province Street Project, including both office and retail components, will create a demand for 116 long-term employee spaces (all day commuter parking) and 38 short-term spaces for a total of 154 parking spaces.

TABLE 21
NET NEW PARKING DEMAND

<u>Trip Type</u>	<u>Two-Way Vehicle Trips</u>	<u>One-Way Vehicles</u>	<u>Turnover Rate*</u>	<u>Parking Demand</u>
<u>Work Trips</u>				
Office	215	108		
Retail	16	8		
Subtotal	<u>231</u>	<u>116</u>	1.00	116
<u>Non-Work Trips**</u>				
Office	136	68		
Retail	66	33		
Subtotal	<u>202</u>	<u>101</u>	2.67	<u>38</u>
TOTAL	433	217		154

* The turnover rate is the number of vehicles using the same space on a given day. Both rates used here are taken from page C-6 of Parking in Central Boston, a 1983 report prepared for the Boston Transportation Department by Cambridge Systematics, Inc., and Vanasse/Hangen Associates. Use of those rates here is conservative (i.e., may over-estimate parking demand) because some non-work trips at office buildings are made by workers and thus do not add to parking demand.

** Includes tenant and non-tenant parking.

Under Option A, the provision of 440 parking spaces will comfortably meet the demand for the 154 parkers generated by the proposed building. By accommodating all parkers generated by the proposed development, Option A will provide 286 public parking spaces, compared to the 305 public parking spaces currently provided for the existing peak parking demand of 250 parkers. Under Option A, all 250 existing parkers will be accommodated in the new parking facility, but there will be 19 fewer spaces than the current 305-space supply. Option B, which provides 140 spaces, will provide no public parking spaces for the existing parkers at the site. The provision of 140 spaces will meet about 90 percent of the parking demand of 154 spaces generated by the

proposed development. In addition to providing no public spaces to replace those spaces currently available at the site, implementation of Option B will result in a deficit of 14 spaces for parkers generated by the proposed development.

As discussed earlier, there is currently a theoretical 622-space surplus of public parking spaces in the area around the site (Parking Zones 1, 2, and 3 from the BTD's 1987 parking inventory report). If Option A is built, 286 of the existing 305 public parking spaces will be retained. A 19-space decrease in the 622-space surplus will result in a 603-space surplus of public parking spaces areawide. If Option B is built, none of the existing 305 public spaces existing on-site will be retained. A 305-space decrease in the 622-space surplus, plus an additional 14-space unmet demand for the project, will result in a reduced areawide surplus of 303 public parking spaces.

The above parking estimates are conservative (i.e., they tend to overestimate the demand for parking) because they assume that the full theoretical demand calculated for the retail component will actually occur. In reality, it is more likely that only retail work trips will require parking, since retail non-work trips will almost certainly be of the walk-in type due to the small scale of the retail component and its highly local orientation. This would reduce the demand numbers by twelve spaces. It is anticipated that any parking deficit remaining after the proponent's proposed parking supply increase (through use of a valet parking system during peak demand periods) will be handled either at other nearby lots or garages (which have a small projected surplus), through increased project ridesharing and transit riding, or a combination of the two.

C. PUBLIC TRANSPORTATION

1. Planned Services

Due to a major public transportation expansion program underway in Boston, the capacity of the rapid transit system and the commuter rail network has increased in recent years and will increase further in the coming years. The MBTA is working to achieve train lengths of two to three cars on the Green Line and six cars on all Red, Orange, and Blue Line trains. The commuter rail system is likewise being expanded, with the addition of new coaches, new park-and-ride spaces, and possible new routes. The projected peak hour (both morning and evening) capacity of the rapid transit system in 1991 is shown in Table 22.

All the rapid transit capacity improvements planned for 1991 are already in place and are reflected in the Existing Conditions section. While twenty new Red Line cars are to enter service in the next few months, these will be scheduled in place of some of the older Red Line cars, improving reliability but not average line capacity.

TABLE 22
1991 PEAK HOUR RAPID TRANSIT LINE CAPACITY*

<u>Line/Segment</u>	<u>Average Cars/ Train</u>	<u>Average Headway* (Minutes)</u>	<u>Average No. of Trains</u>	<u>Planning Capacity of Car**</u>	<u>Planning Capacity of Line</u>
<u>Red Line/North</u> Ashmont-Alewife Braintree-Alewife	5.08	4.00	15.0	180	13,700
<u>Red Line/South</u> Alewife-Ashmont Alewife-Braintree	5.23	3.33	18.0***	180	17,000
<u>Green Line/West</u> Boston College Cleveland Circle Riverside Huntington Ave.	1.69	1.32	45.5	130	10,000
<u>Green Line/North</u> Lechmere Service	2.00	8.00	7.5	130	1,950
<u>Orange Line/ North-South</u> Oak Grove- Forest Hills	5.57	4.29	14.0	155	12,100
<u>Blue Line</u> Bowdoin-Wonderland	4.00	3.16	19.0	110	8,350

* Projected capacity equals existing capacity.

** The MBTA uses these capacity estimates for planning purposes. Heavier loads can be carried and are often observed on the system.

*** Includes three additional six-car Braintree trains during the peak hour.

2. Project Transit Demand

Based on the trip generation and mode split patterns for downtown commercial developments, the proposed project at 45 Province Street is expected to generate a total of approximately 1,435 new daily transit trips. As shown in Table 23, about 261 of these will occur in the morning peak hour, and about 282 will occur in the evening peak hour.

TABLE 23
TRANSIT TRIP GENERATION

<u>Time Period</u>	<u>All Transit Trips</u>
<u>Morning Peak Hour</u>	
In	254
Out	<u>7</u>
TOTAL	261
<u>Evening Peak Hour</u>	
In	19
<u>Out</u>	<u>263</u>
TOTAL	282

3. Transit Impact Analysis

For impacts on the transit system, the evening peak hour was analyzed; however, figures for the morning peak hour are similar. The 263 new outbound transit trips in the evening peak hour were assumed to be distributed among the major transit modes and among the seven rapid transit peak load points in proportion to existing (fall 1988) peak hour volumes. The percentages are given in Table 24.

TABLE 24
DISTRIBUTION OF NEW TRANSIT TRIPS

<u>Transit Mode</u>	<u>Percent</u>	<u>Evening Peak Hour Outbound Trips</u>
Bus	14	37
Commuter Rail	20	52
<u>Rapid Transit</u>		
Red Line/North	10	26
Red Line/South	16	42
Green Line/West	11	29
Green Line/North	1	3
Orange Line/North	11	29
Orange Line/South	9	24
Blue Line/North	8	21
Total Rapid Transit	<u>66</u>	<u>174</u>
TOTAL	100	263

By 1991, peak hour transit ridership is expected to be considerably greater than the numbers reported in the Existing Conditions chapter. The No-Build ridership figures presented in Table 25 were computed by adding to existing volumes the trips generated by all known background developments which (1) were not occupied when the ridership counts were taken, and (2) are expected to be occupied in 1991.

TABLE 25
1991 RAPID TRANSIT RIDERSHIP AND CAPACITY
EVENING PEAK HOUR OUTBOUND

<u>Line/ Segment</u>	<u>Planning Capacity of Line*</u>	<u>No-Build Ridership**</u>	<u>No-Build Percent of Capacity</u>	<u>Project Ridership</u>	<u>Percent of No-Build Ridership</u>
Red/ North	13,700	9,000	66	26	0.3
Red/ South	17,000	14,500	85	42	0.3
Green/ West	10,000	11,000	110	29	0.3
Green/ North	1,950	1,500	77	3	0.2
Orange/ North	12,100	11,000	91	29	0.3
Orange/ South	12,100	9,500	79	24	0.3
Blue/ North	8,350	7,500	90	21	0.3

* See Table 22.

** These figures were computed by adding to existing volumes the trips generated by background developments expected to be occupied in 1991.

Table 25 also gives 1991 No-Build ridership as a percentage of 1991 capacity. On the Green Line/West, ridership is expected to exceed planning capacity by 10 percent. Ridership on all other rapid transit lines will be below planning capacity. The MBTA already has enough Green Line equipment to eliminate the forecast shortfall in planning capacity. The capacity provided in 1991 on the Green Line/West will be determined by the operating budget.

As shown in the last column of Table 25, the 45 Province Street Project will have a negligible impact on the rapid transit system, contributing between two-tenths and three-tenths of one percent to the ridership at each peak load point in the system. In the evening peak hour outbound, the project will add about one passenger to every third car on these critical segments of the network.

D. PEDESTRIANS

1. Project-Generated Volumes

Pedestrian trips will include strictly walk trips and transit-related trips (i.e., walking to rapid transit stations, bus stops or the commuter rail). No vehicle related walk trips are expected, since all tenant parking is located on-site and is accessible by internal elevators. Approximately 1,788 daily pedestrian trips are expected to be generated by the 45 Province Street Project, with 354 of those trips being strictly walk trips (i.e., the entire trip is made by walking, and no other mode of travel is used for any portion of the trip), while the remaining 1,435 trips are transit related.

As seen in Table 26, the 45 Province Street development is expected to generate approximately 277, 270 and 295 new pedestrian trips during the morning, midday and evening peak hours, respectively.

TABLE 26
PROJECT-GENERATED PEDESTRIAN TRIPS

<u>Type of Trip</u>	<u>Morning Peak Hour</u>	<u>Midday Peak Hour</u>	<u>Evening Peak Hour</u>	<u>Daily</u>
Walk Trips	24	218	32	354
Transit Trips	<u>255</u>	<u>52</u>	<u>263</u>	<u>1,435</u>
TOTAL	277	270	295	1,789

The morning and evening peak hour numbers in Table 26 were taken from Table 12. The daily numbers were obtained from Table 13. The peak and daily totals were derived as explained earlier in this chapter in the "Project-Generated Traffic" section. The midday peak hour numbers were derived as follows:

● Walk Trips

- The 1,292 two-way daily office work trips (see Table 7) generated by the project represent 646 people; it was assumed that one-half of these would go out at lunch and one-half of these would do so during the midday peak hour, resulting in 161 midday pedestrian trips;
- The 690 two-way daily office non-work trips (see Table 7) represent 345 people; Table 11 indicates that 12 percent occur during the commuter peak, leaving 88 percent to be distributed over the rest of the day (say eight hours), resulting in 38 midday pedestrian trips;
- Retail workers were assumed not to create midday pedestrian trips since they would tend to cater to their customers during this busy shopping time;

- The 456 two-way daily retail non-work trips (see Table 7) represent 228 people; Table 11 indicates that 15 percent occur during the commuter peak, leaving 85 percent to be distributed over the rest of the retail day (say ten hours), resulting in 19 midday pedestrian trips;
- The total of the above components results in an estimate of 218 midday walk trips.

● Transit Trips

- It was assumed that 20 percent of the commuter peak hour transit total of about 260 trips would occur during the midday peak, resulting in 52 walk trips in this category.

2. Background Pedestrian Growth

To assess future conditions, it is necessary not only to forecast project-related pedestrian increases, but also to predict increases in background pedestrian traffic. Growth in background pedestrian traffic is a function of other development activity expected within the area. For this analysis, the projection of background or No-Build pedestrian traffic (i.e., future pedestrian traffic without the 45 Province Street development) was based on the assessment of other specific development proposals projected to be completed by 1991, the year when the proposed development is expected to be fully occupied.

Pedestrian trips tend to be localized and fairly short in distance in comparison to vehicle trips. Therefore, pedestrian trips were analyzed for only those projects in the immediate vicinity of the 45 Province Street site.

Table 27 lists the projects included in the development of the 1991 No-Build pedestrian networks and the projected uses for each development.

TABLE 27
1991 BACKGROUND DEVELOPMENT (PEDESTRIANS)

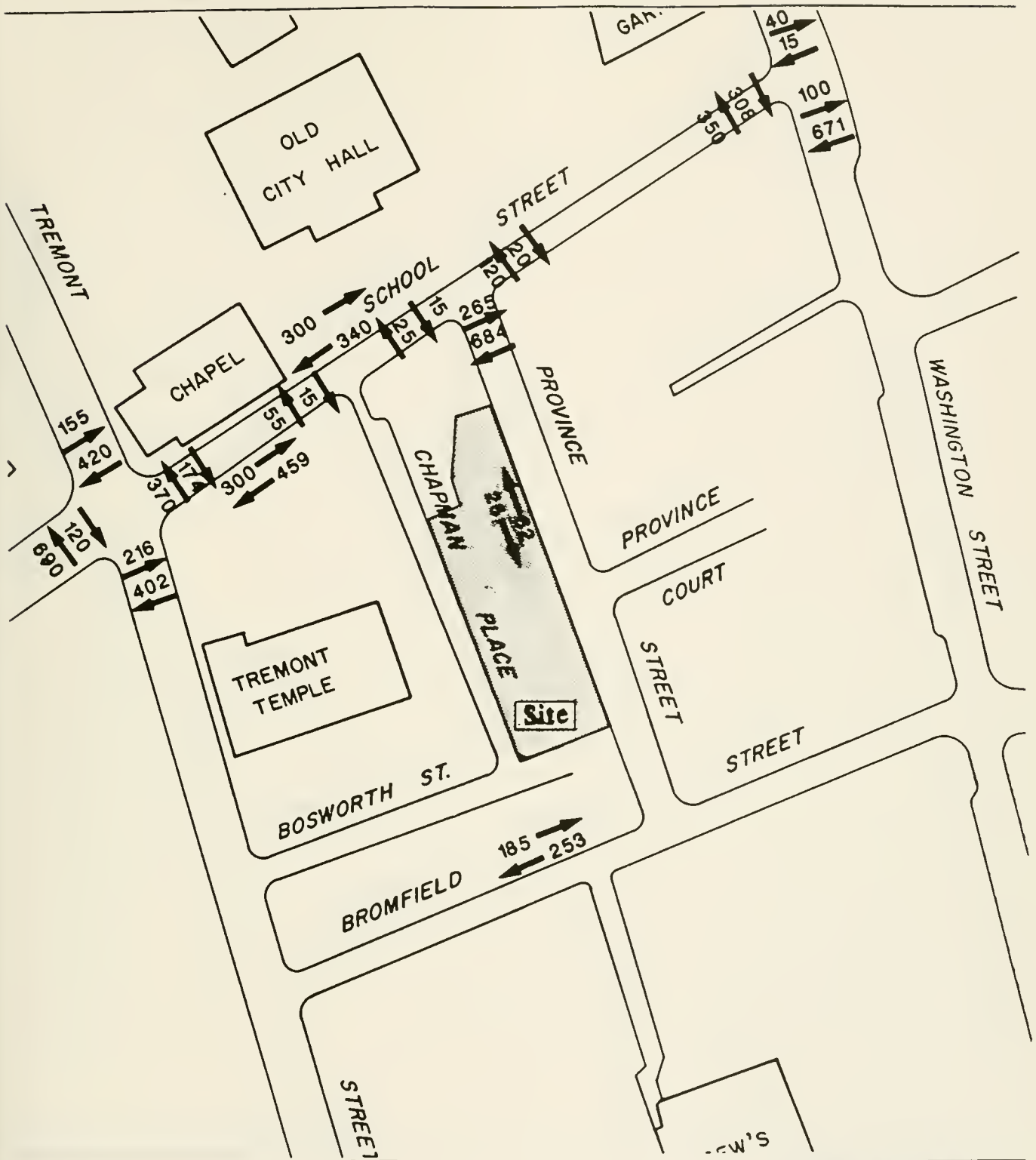
<u>Development</u>	<u>Size</u>	<u>Use</u>
73 Tremont Street	276 KSF* 20 KSF	Office Retail
110-120 Tremont Street	336 KSF	Office
Temple Place Project	220 KSF	Office

* Thousand square feet.

3. Pedestrian Trip Distribution

The new transit related pedestrian trips projected to be generated by the proposed 45 Province Street project were distributed to the nearest transit station based on the percentage provided earlier in Table 24. The strictly walk trips were distributed to the streets leading into and out of the study area. Background project distributions were assigned in the same manner as the project generated pedestrian trips.

Projected 1991 No-Build pedestrian volumes for the morning, midday and evening peak hours are shown in Figures 17, 18 and 19 respectively. Build pedestrian volumes for the morning, midday and evening peak hours, are shown in Figures 20, 21 and 22, respectively.

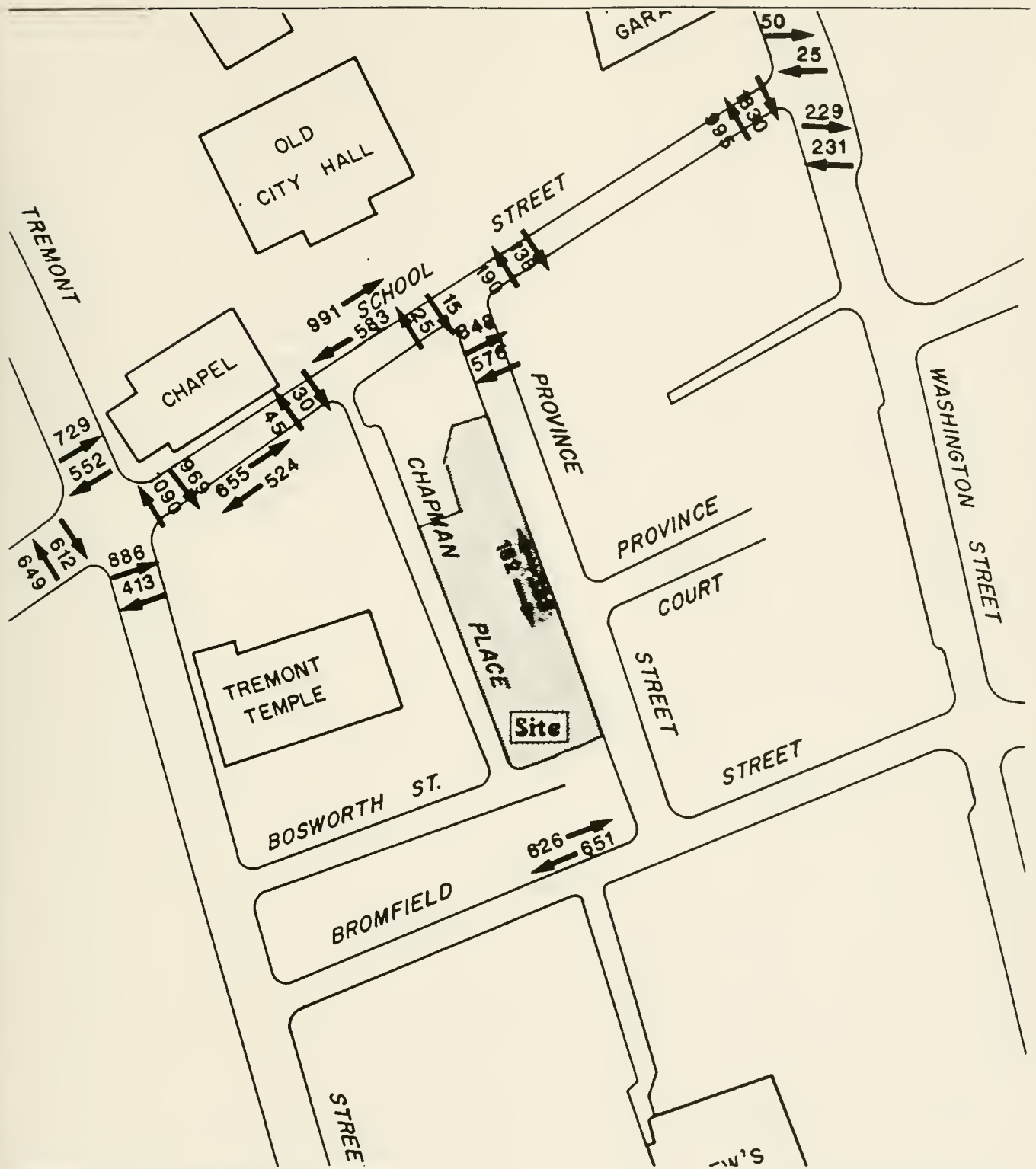


Vanasse Hangen Brustlin, Inc.
Consulting Engineers & Planners
60 Birmingham Parkway, Boston, MA 02135

1991 No-Build
AM Peak Hour
Pedestrian Volumes

Not to Scale

Fig. 17

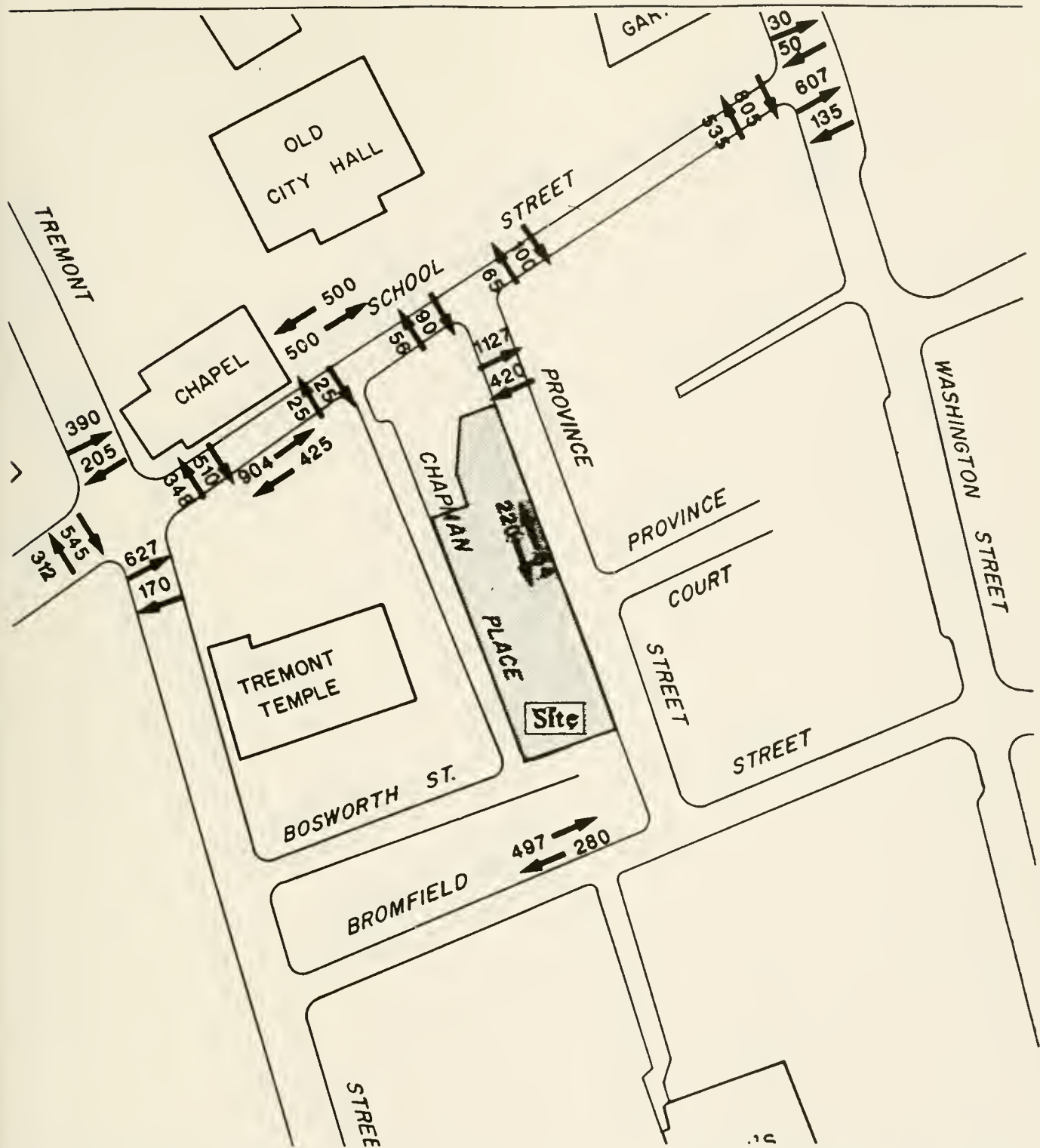


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Not to Scale

Fig. 18

1991 No-Build
Midday Peak Hour
Pedestrian Volumes

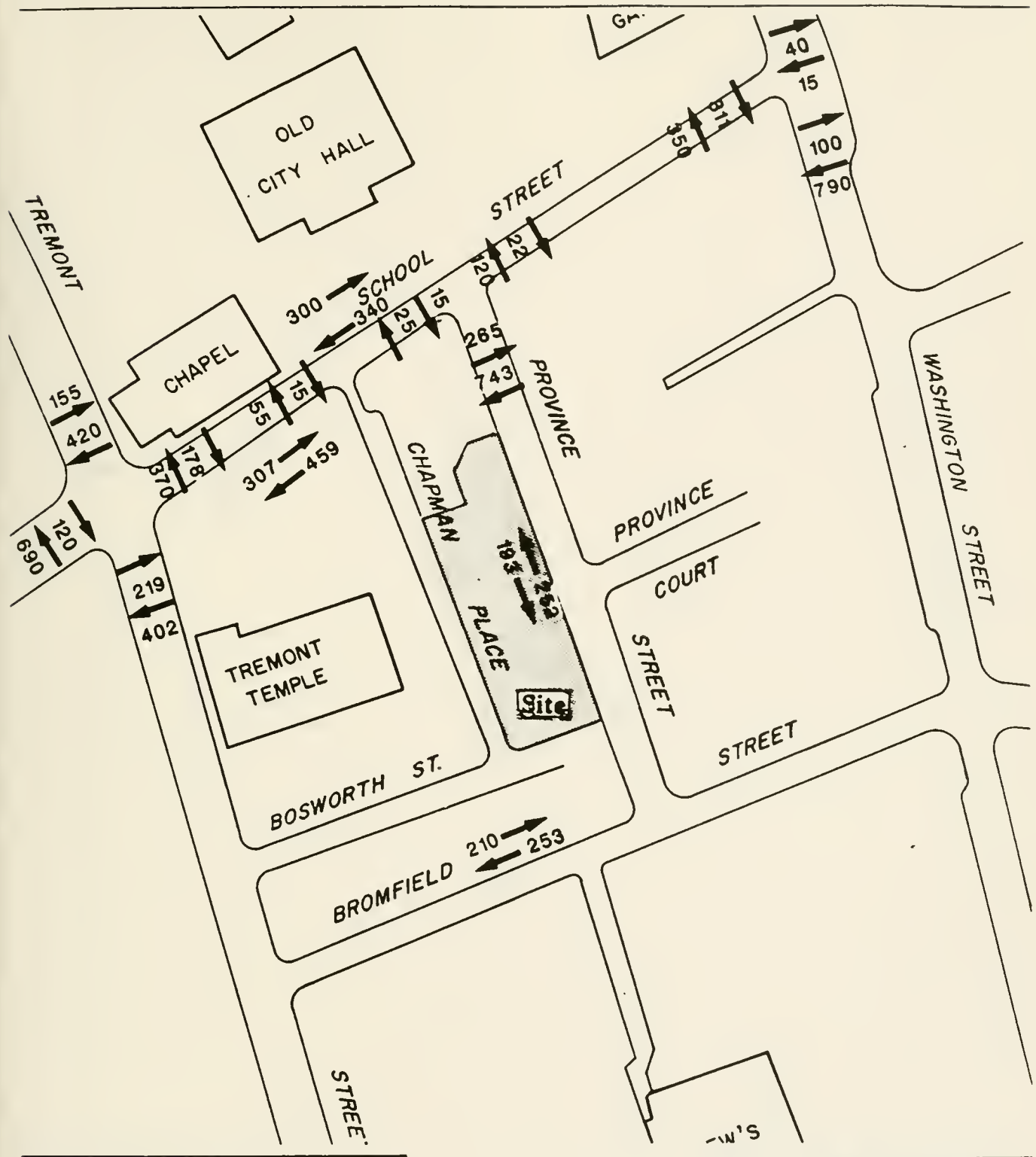


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1991 No-Build
PM Peak Hour
Pedestrian Volumes

Not to Scale

Fig. 19

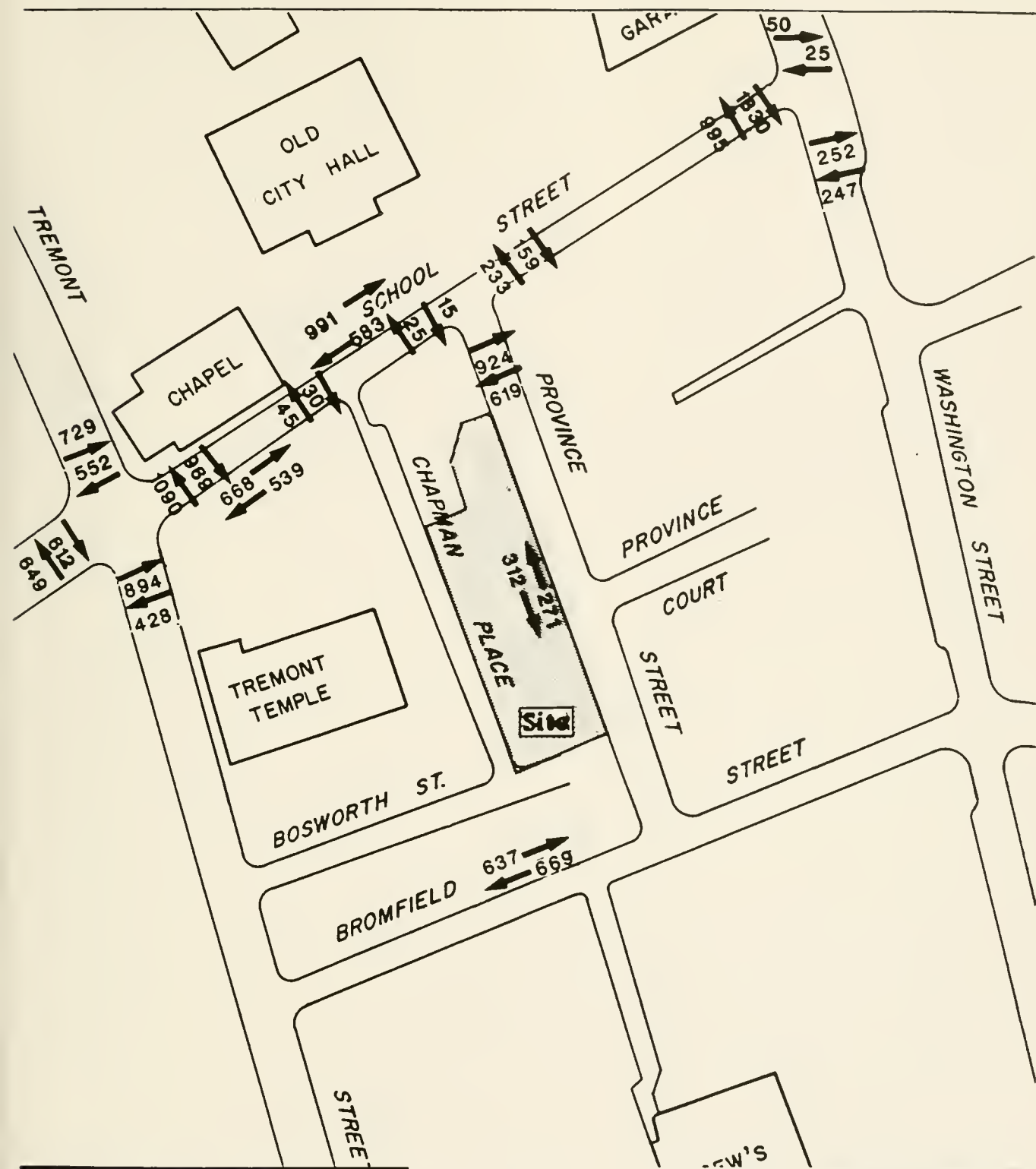


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Not to Scale

1991 Build
AM Peak Hour
Pedestrian Volumes

Fig. 20

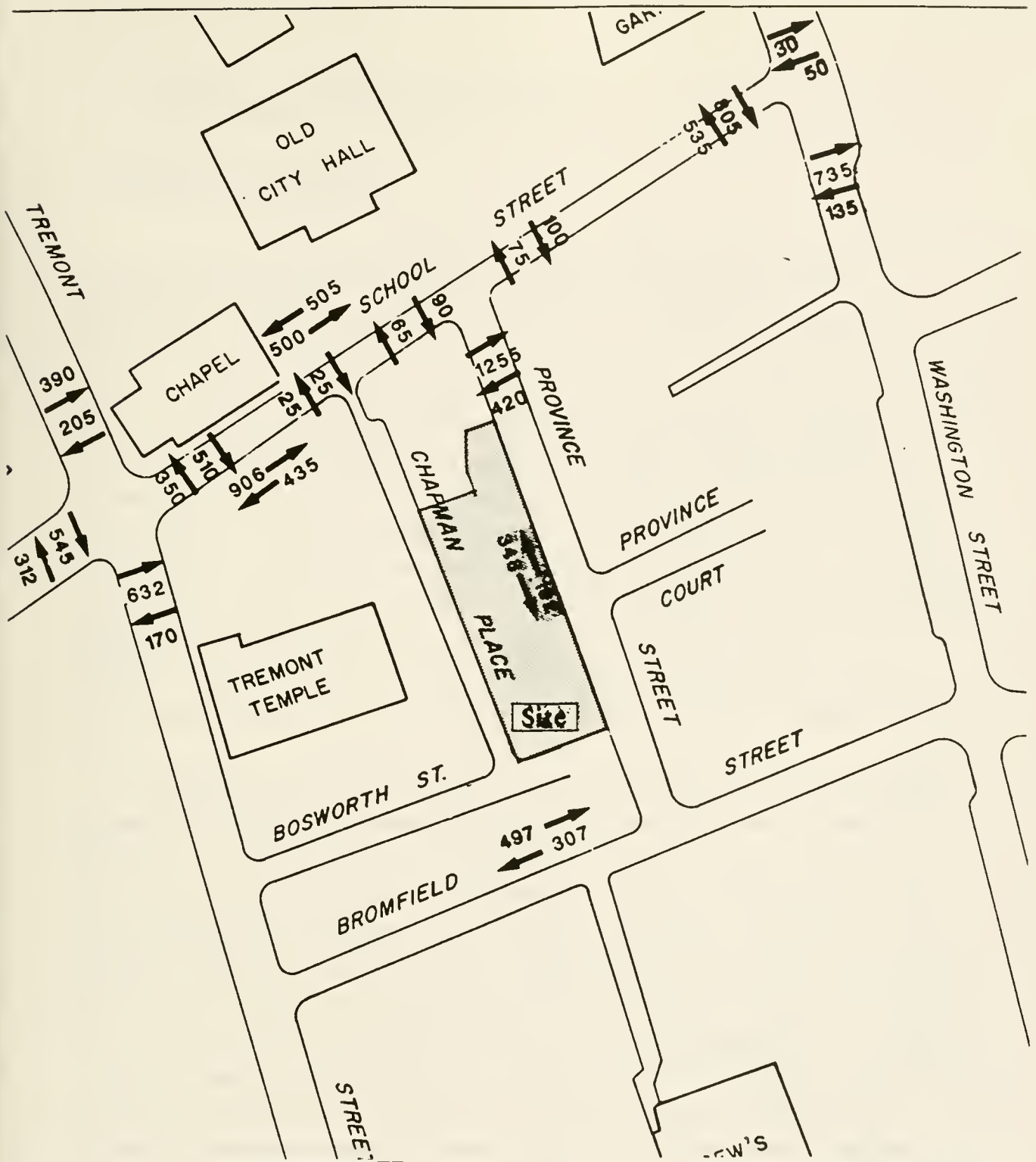


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Not to Scale

Fig. 21

1991 Build
Midday Peak Hour
Pedestrian Volumes



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1991 Build
PM Peak Hour
Pedestrian Volumes

Not to Scale

Fig. 22

4. Sidewalk Level-of-Service Analysis

● Analysis Procedures

The 1985 Highway Capacity Manual (Special Report 207 by the Transportation Research Board, National Research Council, Washington, D.C.) provides a system for defining pedestrian levels of service based on the sidewalk space provided to pedestrians. As in vehicular levels of service, a ranking system from A to F is provided for walkways and for pedestrian queuing areas. Level of Service A within a walkway affords pedestrians the opportunity to move in desired paths without altering movements in response to other pedestrians. Level F is characterized by frequent unavoidable contact with other pedestrians. In Level C, sufficient space is available to select normal walking speeds and bypass other pedestrians in primarily one-way streams. In Level D, the selection of individual walking speed becomes restricted as well as the ability to bypass other pedestrians.

Pedestrian flow is subject to wide variability on a minute-by-minute basis, and general flows of pedestrians as well as the effects of platooning of pedestrian flows must be considered. Short-term fluctuations are present in most unregulated pedestrian traffic flows due to the random arrivals of pedestrians. Random fluctuations are further exaggerated by the interruption of flow and queue formations caused by traffic signals. Transit facilities can also create added surges in demand by producing large groups of pedestrians in short time intervals, followed by periods during which little or no flow occurs. Until they disperse, pedestrians in these types of groups move together as a "platoon". Platoons can also form if passing is impeded due to insufficient space, and faster pedestrians slow down behind slower walkers.

Due to the presence of several transit stations near the project site and the presence of traffic signals at nearby intersections, both the general flow and the platoon effect on pedestrians were analyzed on study area sidewalks.

Table 28 provides a summary of pedestrian level-of-service criteria on walkways.

TABLE 28
PEDESTRIAN LEVEL-OF-CRITERIA SERVICE ON WALKWAYS

Level of Service	Expected Flows and Speeds			
	Space (Sq Ft/ped)	Average Speed (Ft/Min)	Flow Rate (Ped/Min/Ft)	v/c Ratio
A	≥ 130	≥ 260	≤ 2	≤ 0.08
B	≥ 40	≥ 250	≤ 7	≤ 0.28
C	≥ 24	≥ 240	≤ 10	≤ 0.40
D	≥ 15	≥ 225	≤ 15	≤ 0.60
E	≥ 6	≥ 150	≤ 25	≤ 1.00
F	≥ 6	≥ 150	-- Variable --	

● Capacity Analysis

Walkway analysis was conducted on the sidewalks adjacent to the site at the following locations during the morning, midday and evening peak hours for Existing, No-Build and Build Conditions:

- Province Street (west sidewalk)
- School Street (south sidewalk)
- Bromfield Street (north sidewalk)

The results of the pedestrian level-of-service analysis are presented in Table 29.

As seen in Table 29 under Existing Conditions, all sidewalks operate at LOS B or better under general flow conditions and LOS C or better under the platoon effect conditions.

Under 1991 No-Build conditions during the morning peak hour, the School Street sidewalk is projected to experience a decline in level of service from LOS A to LOS B and LOS B to LOS C under the general flow and platoon effect conditions, respectively. During the midday peak hour, none of the three sidewalks is anticipated to experience a decline in level of service. During the evening peak hour the Bromfield Street sidewalk is anticipated to decline in level of service from LOS B to LOS C for the platoon effect condition only.

The addition of project-related pedestrian traffic is anticipated to have a significant effect only on the Province Street sidewalk during the midday and evening peak hours. The Province Street sidewalk is projected to decline in level of service from LOS A to LOS B during both the midday and evening peak hours for the general flow condition only. No other sidewalks will be significantly affected by project-generated pedestrian traffic.

It should be noted that an alternative analysis procedure proposed in Urban Space for Pedestrians by Pushkarev and Zupan is available. It was agreed during scoping discussions with the BTD, however, that the HCM procedure is acceptable and would be applied for this project. The HCM procedure tends to be more lenient, resulting in somewhat better pedestrian flow characteristics.

TABLE 29
PEDESTRIAN WALKWAY
LEVEL-OF-SERVICE SUMMARY

Time Period	Flow Rate**	General Flow			Platoon Effect*		
		Existing LOS***	No-Build		Existing Flow Rate	No-Build	
			Flow Rate	LOS		Flow Rate	LOS
Province St. (west sidewalk)	0.3	A	0.4	A	4.3	4.4	B
	1.3	A	1.3	A	5.3	5.3	B
	1.2	A	1.3	A	5.2	5.3	B
School St. (south sidewalk)	1.9	A	3.0	B	5.9	7.0	C
	3.7	B	4.3	B	7.7	8.3	C
	3.7	B	5.7	B	7.7	9.7	C
Bromfield St. (north sidewalk)	1.5	B	2.0	B	5.5	6.0	B
	4.7	B	5.0	B	8.7	9.0	C
	2.2	B	3.9	B	6.2	7.9	C

* Platoon Effect = General Flow + 4.

** (Ped/Min/Ft).

*** Level of service.

E. CONSTRUCTION IMPACTS

The construction analysis is based on the impacts related to parking garage Option A, which will provide seven levels of underground parking beneath the building and underneath Province Street and Chapman Place. It is assumed that the construction impacts associated with Option B, which calls for four-levels of underground parking beneath the building only, would be similar to the impacts associated with Option A.

1. Construction Worker Trip Generation and Parking

Project construction scheduled to begin in October, 1989, will require about 24 months with an anticipated work shift of 7:00 AM to 4:00 PM. A second shift (4:00 PM to midnight) employing about 35 workers is contemplated during the excavation phase from January 1990 to March 1991. The number of workers required during the construction period will vary, with an estimated average daily work force of 75. The peak work force of about 200 will be on site for approximately ten months. Trip generation by construction workers is a direct function of employment levels. The construction firm selected by the developer estimates that many of the workers will utilize public transportation due to the high cost of parking near the site and its good accessibility via transit. The estimate appears reasonable considering that, to comply with the Mayor's Executive Order of 1985, at least 50 percent of the construction workers will reside in Boston, where use of public transportation is highest. The 1980 Census reported that only 23 percent of Boston residents employed in the Central Business District commuted by private vehicle. Measures to discourage the use of automobiles by construction workers are presented in the mitigation section of this report.

Assuming that 40 to 50 percent of the construction workers commute by automobile, with an average auto occupancy of two persons (based on the cost of parking and the greater inclination of construction workers to carpool), construction workers during the peak construction period would generate 40 to 50 vehicle-trips between 6:30 and 7:00 AM and again between 4:00 and 4:30 PM. Average-day construction activity would generate less than one-half that number. Due to the timing and relatively small number of these trips, no significant impact to the area roadway system is anticipated.

Parking for construction workers will not be available on-site. Therefore, construction workers who choose to drive to the site will park in available public spaces in area garages.

2. Lane Restrictions

Development Option A, calls for a 13-story building with a seven-level, below-grade parking facility under the building and extending under both Chapman Place and Province Streets. Therefore, Chapman Place between the Parker House office building and Bosworth Street will have to be closed during construction. In addition, the sidewalk on Province Street adjacent to the site will have to be closed during construction and pedestrian traffic will be diverted to the sidewalk on the east face of Province Street. Existing pedestrian volumes along the west face of Province Street are 75, 310, and 275 during the morning, noontime and evening peak hours, respectively. Lane closures will be necessary on Province Street adjacent to the site to provide a construction staging area. The fence surrounding this area will extend approximately 14-feet from the edge of the sidewalk on the west side of Province Street, leaving 20-feet of pavement available for travel, parking and loading. As a result, there will be a loss of a loading lane on the west side of Province Street.

The remaining 20-feet of pavement will be used for one travel lane and one loading and handicapped parking lane. As noted earlier, a survey of the handicapped parking zone on Province Street indicated heavy usage with many destinations on Province Street itself and virtually all others within one block of the parking site. Therefore, it would be desirable for the handicapped parking zone to remain on Province Street during the construction period. Proposals for use of the available curb space are included in the "Transportation Mitigation and Monitoring" section. These proposals were worked out through discussions with the BRA, BTD, and abutters on Province Street, including the 333 Washington Street building.

Preliminary discussion held with the Boston Transportation Department indicated that the preferred routing for construction truck traffic to the site would be via Franklin Street and Bromfield Street to Province Street, and that commercial loading zones on Bromfield Street and Province Street be retained during construction. Assuming that truck traffic destined for the site is to use Franklin and Bromfield Streets, the restriction of construction vehicles on these streets after 11:00 AM will need to be temporarily discontinued for the length of the construction project for project-related trucks and trucks making deliveries to other businesses on Province Street. Since construction vehicles will be travelling northbound on Province Street and loading zones are to be maintained on the east side of Province Street, travel on Province Street will be restricted to one-way northbound, as only 20-feet of pavement will be provided. Since the parking garage and lot on Province Street will not be in operation during construction, private automobile traffic on Province Street will be greatly reduced.

In order for trucks entering the construction site to more easily make a right turn from Bromfield Street to Province Street, it would be desirable if loading were restricted on the

south side of Bromfield Street just east of Province Street for the duration of the construction project. The BTD has indicated that it may be possible to relocate the Bromfield Street loading zone to the north side of the street, which would accomplish the same objective without losing loading space.

3. Construction Vehicle Routings and Deliveries

The exact source locations of construction materials is not known at this time, but it is expected that all deliveries will access the site via the Central Artery. Deliveries from the north will likely exit the Central Artery at the Dock Square off-ramp and then proceed to the site via North Street, Congress Street, Franklin Street, Bromfield Street and Province Street. From the south, deliveries will likely exit the Central Artery off-ramp at Atlantic Avenue and Northern Avenue, then proceed via the Surface Artery, High Street, Pearl Street, Franklin Street, Bromfield Street, and Province Street. Return trips to the north will be via School Street, Washington Street, Water Street, Pearl Street, Congress Street, and North Street to the Central Artery. Southbound trips will use School Street, Washington Street, and Congress Street to the Central Artery.

Over the 24-month construction period, delivery trucks are projected to average 18 to 20 vehicles per day, with a peak of 50 vehicles per day occurring when the pouring of concrete takes place. Assuming 20 trucks per day and an even distribution over a nine-hour day, this translates to approximately two deliveries per hour. If it is further assumed that each vehicle arrives and departs within the same hour, a maximum of four truck trips would occur per hour.

TRANSPORTATION MITIGATION AND MONITORING

A. TRAFFIC MANAGEMENT

Traffic management, as it relates to the 45 Province Street project, has two major components: traffic operations improvements and traffic demand reduction strategies. The first component seeks to enhance the capacity of existing roadway facilities, while the second targets ways to reduce the volume of traffic on the roadways. In order to realize the greatest benefits, both components of a traffic management plan should be simultaneously implemented.

1. Traffic Operations Improvements

The project's size characteristics, excellent location with respect to public transportation services, and the proponent's proposed commitment to various travel demand reduction strategies all will result in relatively small traffic impacts at key locations. Nevertheless, the proponent recognizes the desirability of improving traffic operations within the Government center area so as to maximize the efficiency of traffic flow to and from the project site. To this end, the proponent supports the City's efforts to implement the computerized operation of more than 300 signalized intersections in the City, including those adjacent to the project site. As part of this effort, the signal timing and coordination between the intersections of Tremont Street, Beacon Street, and School Street, Tremont Street and Bromfield Street and Tremont Street and Park Street should be analyzed by the City to determine if side street volumes such as on Bromfield Street warrant more green time. The signal timing and green allocation at the intersection of Washington Street at School Street should also be checked.

In addition to improved signal timing and coordination, the proponent supports the continued enforcement of the peak hour parking restrictions along Tremont Street. City observations to date have shown significant reductions in travel time along this arterial due to the vigorous enforcement of these parking restrictions.

Discussions with the BRA, BTB, and Province Street abutters, including the 333 Washington Street building, have led to agreement on a series of mitigation measures which are to be implemented during the construction period and remain in effect after the project is built. These include:

- Retain handicapped parking on the east side of Province Street between School Street and the Boston Five/Friar Tucks property line;
- Relocate the two handicapped spaces just north of Province Court to south of Province Court, leaving the curb between the Boston Five/Friar Tucks property line and Province Court available as a commercial vehicle loading zone;
- Remove the dumpsters from Province Court and sign it as an additional commercial vehicle loading zone; and
- Enforce these revised regulations to ensure optimum use of this high-demand curb space by legal users only.

2. Traffic Reduction Strategies

Reducing the amount of traffic generated by a development is a complementary component to traffic operations improvements necessary to satisfy projected traffic growth. Much can be done

to reduce automobile usage and thereby lessen the need for improvements or allow for more efficient use of any improvements provided. The following measures are designed to reduce the number of vehicle trips to the project area during the peak commuting hours. The project proponent is committed to implementing them within his ability to do so.

● Ridesharing

Ridesharing is an overall term that refers to encouraging commuters to ride in vehicles with other commuters rather than driving to work alone. The most common forms of ridesharing are carpools and vanpools. Increased ridesharing decreases the number of vehicles using the roadways, and thus decreases the degree of congestion encountered. An additional benefit is reduced fuel consumption, as fewer vehicle miles will be traveled.

The project proponent is committed to the following ridesharing incentives:

1. Provision of carpool and vanpool matching services on-site or joint participation in programs with other nearby tenants, organizations and companies;
2. Provision of promotional materials on ridesharing to building employees; and
3. Coordination with one or more organizations which lease commuter vans and provide administrative and organizational assistance.

● Public Transportation

Another major way to reduce the number of vehicles on the roadways is to encourage employees to use public transportation as an alternative means of traveling to work. The proposed project site is located within walking distance (2,500-feet) of the South Station express buses and commuter trains, the Haymarket express buses (both MBTA and four private carriers), and all lines of the rapid transit system. North Station is accessible by the Orange Line. This location provides an excellent opportunity for the project to generate a high proportion of transit users. The proponent will encourage transit usage through the following measures:

1. Provision of an on-site location for sale of MBTA passes and private bus line tickets;
2. Creation of an MBTA pass subsidy program by which the proponent will offer to a maximum of 100 employees in the building a discount of up to 10 percent for MBTA passes to the extent that the employer-tenant of each employee offers a matching discount of up to 10 percent for MBTA passes to its employees.
3. Provision of commuter bus, commuter rail and commuter boat schedules; and
4. Provision of promotional and informational materials for all modes of public transportation.

● Alternative Work Schedules

Alternative work schedules offer a means of reducing peak hour demands on the roadway and transit systems by shifting travel to non-peak periods or by reducing the total number of trips made per week. The major schedule alternatives are:

1. Staggered work hours - Generally are set up in so as to assign groups of employees staggered starting times, typically at 15-minute intervals, spread over a one or two-hour period;
2. Flexible work hours - Allow employees to choose their own starting and finishing times, so long as they are present during a central part of the day (called core time); and
3. Compressed work week - Involves shifting some workers from a standard five days per week, eight hours per day schedule to fewer days of longer hours (e.g., four days per week, ten hours per day).

The proponent has agreed to the following measures in this category:

1. Encouraging tenants to implement one of the above concepts; and
2. Make building services such as heat, air conditioning, etc., available during "off-hours" (6:00 AM to 10:00 PM) Monday through Friday at no cost penalty to encourage tenant shifts in employee start and end times.

3. Other Transportation Improvements

In addition to roadway improvements and traffic reduction strategies (which generally apply to commuters), there are a variety of other measures which may be implemented to improve traffic conditions as they relate to the proposed project. Measures which would further this goal include:

● Delivery Vehicles

1. Provision of a loading and unloading area on the Chapman Place side of the building in order to minimize on-street delivery activity;
2. Encourage all tenant delivery vehicles (with the exception of courier services) to use off-peak hours, which include all times other than 7:00 to 10:00 AM and 3:00 to 6:00 PM weekdays;
3. Restriction of vehicular deliveries to the building from any location other than the loading area during peak hour. No vehicular deliveries will be accepted through the main entrance to the building during peak hours; and
4. Collection boxes for major courier services will be located in areas convenient to the loading area. Courier services will be required to use the loading area and drop-offs and pick-ups will not be accepted at other locations, thereby minimizing impact to street traffic.

● Taxis

1. Presently, the closest major taxi stand to the project is located at the intersection of Tremont Street, Beacon Street, and School Street. It provides convenient service for building users even though it is not anticipated that the demand for taxi service will increase significantly due to the development of this project; and
2. Taxi drop-offs would occur on Province Street.

● Pedestrians

Pedestrian access is currently provided adjacent to the site on Chapman Place and Bosworth Street, in addition to the sidewalk on Province Street. As part of the 45 Province Street development, the proponent intends to further define and enhance these pedestrian linkages in the following manner:

1. Restore the historic Province Street steps which provide pedestrian access from Bosworth Street to Province Street; and
2. Provide upgraded lighting around the building perimeter satisfactory to the City of Boston Public Works Department.

● Other

To further the Access Plan goals and objectives, the proponent will implement the following measures toward these ends:

1. Provision of a secure bicycle storage area for use by employees who wish to commute via bicycle;
2. Provision of staff support to coordinate all of the above transportation mitigation efforts and provision of a representative who would be responsible for the dissemination of such materials and coordination of activities described above; and
3. Regular dissemination of information to building tenants concerning all of the above by no less than quarterly newsletter or by special topic memoranda as appropriate.

B. PARKING MANAGEMENT

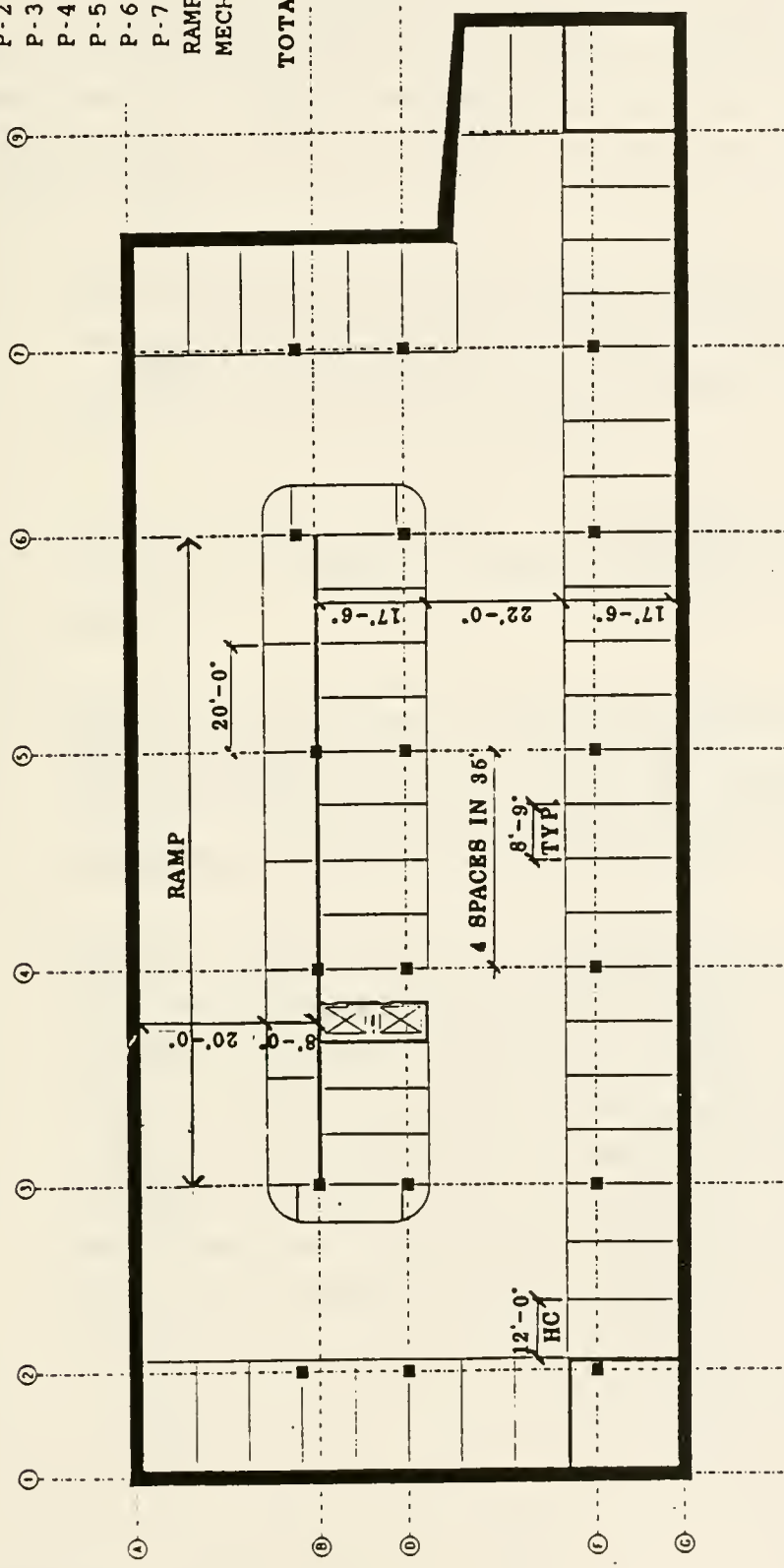
The development's parking supply will be managed to reduce vehicle congestion at the site. The proponent is committed to implementing measures which would accomplish this goal, including:

1. Use of a valet parking system on the three lowest levels of the garage during heavy-demand periods to optimize parking supply up to the 440 figure used in the supply and demand analysis under Option A (140 spaces under Option B);
2. The access and egress to the garage is to be located on Province Street with the access control equipment being located well inside the Province Street building to prevent queuing on Province Street;
3. Provision of designated space for vanpools (one space per 50,000 square feet, or three spaces) and carpools;
4. Preferred parking locations for vanpools and carpools;
5. A parking rate structure which encourages short-term parking and discourages commuter parking; based on the BTD's preferred increasing-rate-per-hour approach;
6. Reserving 25 percent to 50 percent of the commercial spaces until after 9:30 AM to ensure availability for short-term use; and
7. Provision of the required number of handicapped spaces in the garage (nine total).

GARAGE SQUARE FOOTAGE
LEVEL GROSS S.F. OF CARS

P-1	19,700	44
P-2	19,700	56
P-3	19,700	56
P-4	19,700	56
P-5	19,700	76
P-6	19,700	76
P-7	17,575	76
RAMP	4,000	
MECH	3,000	

TOTAL 142,775 440

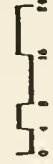


Bruner/Cott

The Abbey Group
45 Province Street
Boston, Massachusetts

Typical Garage Level

501 Vassar Street
 Cambridge, Massachusetts 02139
 617 878 8000
 Architecture/Urban Design
 Preservation/Space Planning



C. CONSTRUCTION MANAGEMENT

An important component of the Access Plan is an effective series of measures designed to minimize traffic flow and safety impacts during the construction phase. Summarized below are several measures which the developer and the construction contractor will incorporate into the construction management plan for the project:

1. Secure fencing, staging and bracing will be provided around the entire site to protect nearby pedestrian traffic. In and out gates for construction vehicles will be located on Province Street.
2. On-site staging areas for construction materials are to be located adjacent to the building along Province Street.
3. The loss of the west curb face and one travel lane (in the southbound direction) will be required on Province Street. Province Street will operate as a one-way north-bound roadway during the duration of construction.
4. The available 20-feet of roadway space on Province Street will be allocated to an 8-foot wide curb lane for handicapped parking and commercial vehicle loading and a 12-foot wide travel lane. The curb space on the east side of Province Street between School Street and Bromfield Street will be reallocated somewhat between these two uses as discussed earlier in the "Traffic Operations Improvements" section.

5. The one-way flow on Province Street will require removal of the signed access restriction on upper Franklin Street during the construction period to allow access to Province Street via Bromfield Street. The BTB has agreed to this measure.
6. Private tractor-trailer commercial vehicles will not be permitted on Province Street during construction. Current use of such vehicles is made by McDonald's, which has agreed to substitute smaller single-unit trucks during the construction period.
7. The sidewalk adjacent to the site on Province Street will be closed for the duration of the construction of the building. Pedestrians will be directed to use the sidewalk on the opposite side of Province Street.
8. Chapman Place between the Parker House Office Building and Bosworth Street will be closed during construction. The northern portion of Chapman Place near School Street will remain open for deliveries to the Parker House.
9. Bosworth Street between Chapman Place and the Province Street steps will remain open for pedestrian traffic only. A covered pedestrian walkway will be provided on Bosworth Street between Chapman Place and Province Street. Temporary steps will be provided while the historic steps are being restored.
10. Construction worker parking will not be permitted on-site or adjacent to the construction area. All construction workers will be required to access the site by public transportation, ridesharing, or by parking at off-site locations.

11. Worker shifts will be scheduled so as to minimize conflict with typical commuting periods.
12. Police details will be placed as required within the construction area to ensure that the above measures are properly implemented.
13. The project proponent will continue collaboration with the BTD regarding all transportation-related construction impacts of the project.

D. MONITORING PROGRAM

In the Probable Project Impacts section, estimates were made for vehicle trip generation which were the result of several combined factors. The most significant factors affecting the number of vehicle trips are:

- Percent transit use (share of project generated person-trips using public transportation), and
- Vehicle occupancy rate (average number of people in each vehicle coming to or leaving the project).

In order to minimize vehicular travel, it would be desirable to increase the number of person trips by public transportation and to increase the vehicle occupancy rate of those vehicles traveling to the project. These factors serve as a basis for establishing a set of access goals for the project.

Table 30 lists the trip generation factors, along with the values assumed for project-generated trips in the Probable Project Impacts section. All figures in the table refer to office work trips, which constitute approximately 85 percent of

the project's vehicle trip generation and 90 percent of its transit trip generation during the peak commuting hours. Changes in the value of each factor may be considered as a measure of effectiveness for the proposed mitigation measures. The mitigation action to improve each factor is also listed, along with the goal set for each factor with implementation of the Access Plan mitigation measures at full project build-out and occupancy. The lower portion of the table summarizes the morning and evening vehicle and transit trips projected in the original impact analysis and those projected to result from the revised trip generation factors. These improved trip generation factors will become the Access Plan goals.

TABLE 30
ACCESS PLAN GOALS
FOR OFFICE WORK TRIPS

	<u>Analysis Estimates</u>	<u>Mitigation Action</u>	<u>Goal</u>
<u>Trip Generation Factors</u>			
Percent by Auto	30%	Transit Incentive	25%
Vehicle Occupancy Rate	1.8	Ridesharing	2.0
<u>Resulting Peak Hour Trips</u>			
Vehicle Trips:	Morning In	59	44
	Evening Out	59	44
Transit Trips:	Morning In	231	249
	Evening Out	231	249

As a follow-up to the setting of Access Plan goals, the proponent will provide annual management reports to the City on compliance with the stated goals and objectives, as well as other areas of the Access Plan. In order to accomplish this, the

proponent will annually conduct a survey of both employees and visitors to the building to determine person trip generation rates, transportation mode splits, vehicle occupancy, peak hour travel percentages, and parking location. Additionally, data on employee and visitor origin and destination locations will be collected as part of the survey work. This data will be collected in light of the City's requirements.

The proponent also commits to working with the City to address any other transportation-related issues affected by the project and to prepare a mutually acceptable Transportation Access Plan Agreement which incorporates traffic mitigation measures as proposed above.

1. Wind
2. Shadow
3. Air Quality
4. Geotechnical Impact
5. Noise
6. Construction Impacts
7. Rodent Control

AN ASSESSMENT OF PEDESTRIAN LEVEL WINDS FOR THE PROPOSED 45 PROVINCE STREET PROJECT IN BOSTON

BY FRANK H. DURGIN P.E.

1.0 INTRODUCTION

This evaluation of pedestrian level winds is based on : 1) A set of drawings of the 45 Province Street Building received at the project review meeting held on September 20, 1988; 2) A map of the Midtown Cultural Area put out by the Boston Redevelopment Authority (BRA); 3) A topographic map of the site showing the property lines dated January 29, 1988 and prepared for The Abbey Group, Inc. by Briggs Associates, Inc. of Rockland Mass.; 4) A visit to the site and a set of photographs taken on September 25, 1988; 5) An evaluation of the urban context of the proposed project; 6) A review of the wind climate for the Boston area; and 7) The author's 19 years experience dealing with pedestrian level winds.

The interaction of the wind with buildings in a city is very complicated and at times unpredictable. Thus this evaluation must be treated as a qualitative assessment of pedestrian level winds.

1.1 LOCATION AND DESCRIPTION OF THE PROJECT

The 45 Province Street Building will occupy all the area in the block surrounded by Bosworth Street, Province Street, School Street, and Chapman Place, except the space currently occupied by the existing 13 story Parker House Office Building at the School Street end of the block. The existing 16 story garage at the south (Bosworth Street) end of the block will be torn down and replaced by a six story garage under the entire building and part of the east side of Province Street. Currently two alternate heights (125 (10 stories) and 155 (13 stories) feet above grade) are being considered for the 45 Province Street Building. The effect of each on

pedestrian level winds near the building will be considered.1.2

DESCRIPTION OF THE AREA SURROUNDING THE BUILDING

The buildings immediately surrounding the site range from 2 to 13 stories. The Parker House and Parker House Annex across Chapman Place are 12 and 10 stories respectively. The Parker House Office Building at the School Street end of the site is 13 stories high. The buildings across Bosworth Street from the site are 3 and 5 stories, except for the building opposite the Parker House Annex, which is 12 stories high. Across Province Street starting from the south end the Hutchinson Building is 2 stories, the Province Building 7 stories, and the Boston Five Cent Savings Bank Building is 8 stories. There are 5 20-43 story buildings within about 2 blocks: i.e. One Beacon Street; The Boston Company Building; Devonshire Towers; the 22 story building at the corner of Milk and Devonshire Streets; and the 42 story Shawmut Building. The One Beacon Street Building (43 stories) is to the NW of the site and the other four are to the NE, E, and SE of the site. Thus the 125 foot height for the 45 Province Street Building will make it about the same height as other nearby 11 and 12 story buildings and 2 stories lower than the Parker House. The 155 foot height will make it about the same height as the Parker House and one or two stories higher than some of the other nearby tall office buildings.

2. THE WIND CLIMATE IN BOSTON

2.1 VARIATION OF AVERAGE VELOCITY WITH HEIGHT

In general the natural wind is unsteady (i.e. it is gusty) and its average velocity increases with height above the ground. Figure 1 depicts approximately how the average velocity varies with height for different types of terrains. While in most cases it does not happen, when one puts up any building, the possibility exists that the building will bring the higher wind speeds at the top of the building down to ground level for certain wind directions. Thus the taller the building the stronger the winds that may occur at its base.

Monolithic buildings (i.e. those that do not change shape with height), if they are significantly taller than most of the surrounding

buildings, almost invariably will be windy at their base. However, when there are a lot of buildings of similar height in an area, the buildings tend to shelter one another from the wind. Whether the 45 Province Street Building is 125 or 155 feet high, it will be similar in height to many of the surrounding buildings and much lower than the many 20 to 40 story buildings to the northwest, north, northeast, east, southeast, and south of the site. The 11 story Parker House Hotel and its annex are just across the quite narrow Chapman Place to the west of the site. Thus, it seems for the two proposed building heights, that there is little likelihood that the proposed building would have any tendency to bring the higher speed winds at its top down to pedestrian level.

2.2 STATISTICAL DESCRIPTION OF THE WIND

Figure 2 depicts a wind rose for the Boston area. As noted in the figure, the wind rose is based on surface wind data from Logan Airport from 1945 to 1965. The total length of each of the lines radiating from the center of the figure is proportional to the time the wind comes from that direction. The length of each line from the center to the lines crossing the radial lines is proportional to the time the winds coming from that direction are less than 3, 12, and 25 mph; the outermost one being for all wind speeds.

The average wind speed measured at 58 feet at Logan Airport is 12.3 mph. At pedestrian level height (i.e. at 4.5 feet; chest height) it is about 8 mph.

Figure 2 shows that the winds in the Boston area come from the northwest one third of the time, from the southwest another third of the time, and from the eastern half of the compass the last third of the time. Not shown in the figure is the fact that northwest winds tend to occur in the winter and southwest winds in the summer. Easterly winds usually occur during storms when there is precipitation.

3.0 THE NORTHWEST (WINTER) WINDS

The northwest winter winds come from directly over the Parker House and its Annex. Thus the entire site is in the lee of the Parker House for northwest winds with the exception of the Bosworth Street or south end where the northwest winds will blow straight down Bosworth Street from Tremont Street. However, since the existing 16 story garage is about as high as the proposed building, any windiness due to these winds will remain about the same as it is today for the proposed building at either of its proposed heights. In fact, it would appear that the only effect of the proposed building would be to reduce any windiness that currently exists on Province Street for these northwest winds.

4.0 THE SOUTHWEST (SUMMER) WINDS

The southwest summer winds come directly up Province Street from Bromfield Street. In this case the buildings immediately upstream of site for southwest winds are 3 to 8 story buildings so that the proposed building at either height will be significantly higher. Again, we have the existing 16 story garage at approximately the same height as the proposed building at the southwest end of the site. There is no reason to expect the proposed 45 Province Street Building to effect southwest winds much differently than the existing 16 story garage.

The only possible exception to this would be for the more southerly of these southwest winds. They will blow diagonally at the much longer wall of the proposed building along Province Street than that of the existing garage. As a result these more southerly southwest winds may be deflected down to the street more than they are now. However, the ten story building at the corner of Washington and Bromfield Streets will offer some shielding from these more southerly southwest winds so that any increase can be expected to be small. In any case a small increase in the winds along Province Street may be desirable on a hot summer day.

5.0 EASTERLY (STORM) WINDS

For easterly storm winds the site is in the lee of the many 20 to 40 story buildings in the financial district of Boston. Immediately across Province Street are 3, 6, and 8 story buildings. Half a block further east along Washington Street are several 10 story buildings. Thus the site is quite shielded from these easterly winds and with the existing garage being of a similar height to the proposed building there is no reason to expect any significant changes in windiness due to these easterly winds when the garage is replaced by the proposed 45 Province Street Building whether at a height of 125 or 155 feet.

6.0 SUMMARY

Currently, the 45 Province Street site is quite benign with regard to pedestrian level winds. There seems to be no reason to expect that the replacement of the existing garage with either the 125 foot or 155 foot proposed versions of the proposed 45 Province Street building will have any significant effect on the current windiness at the site.

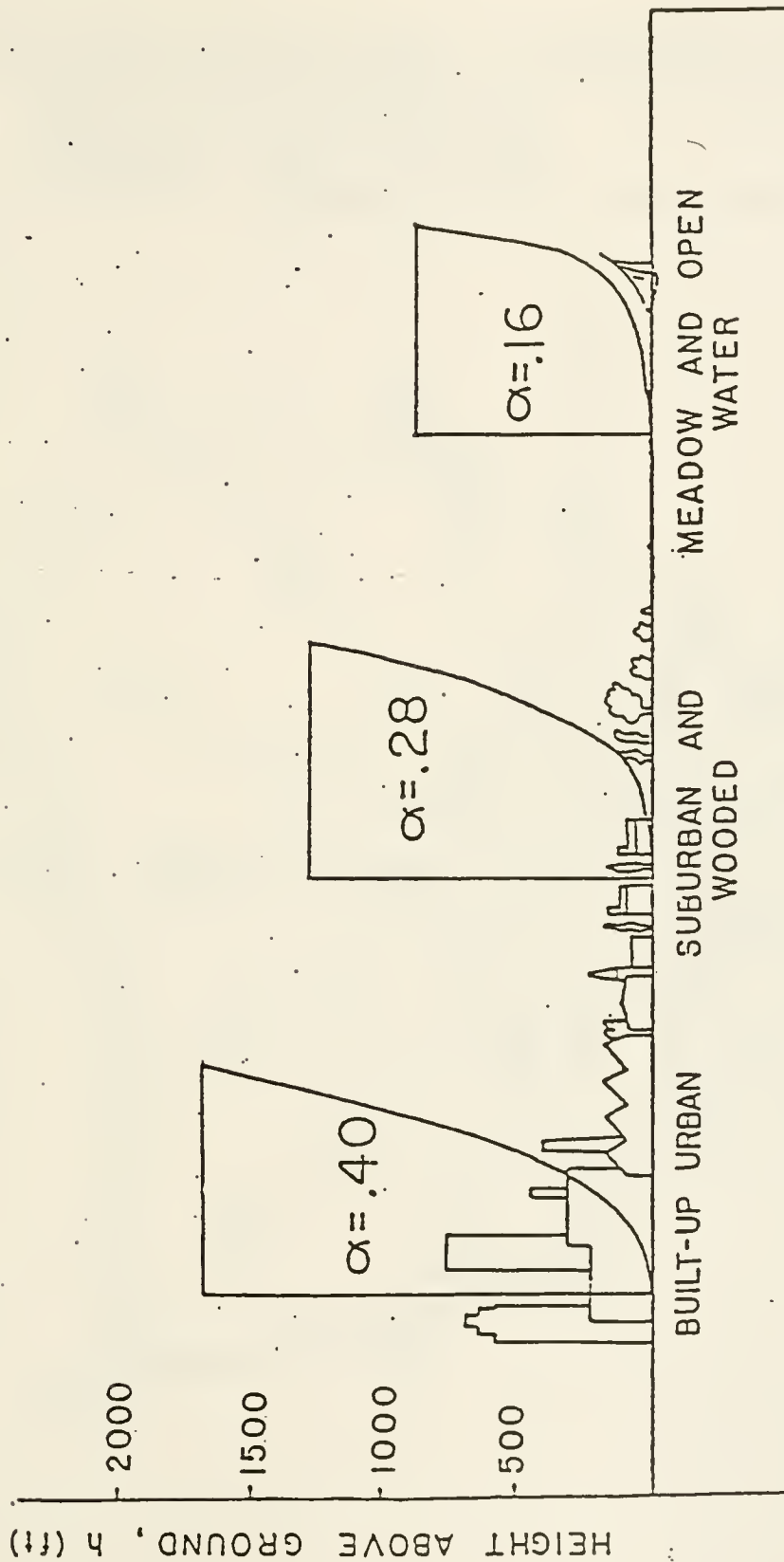
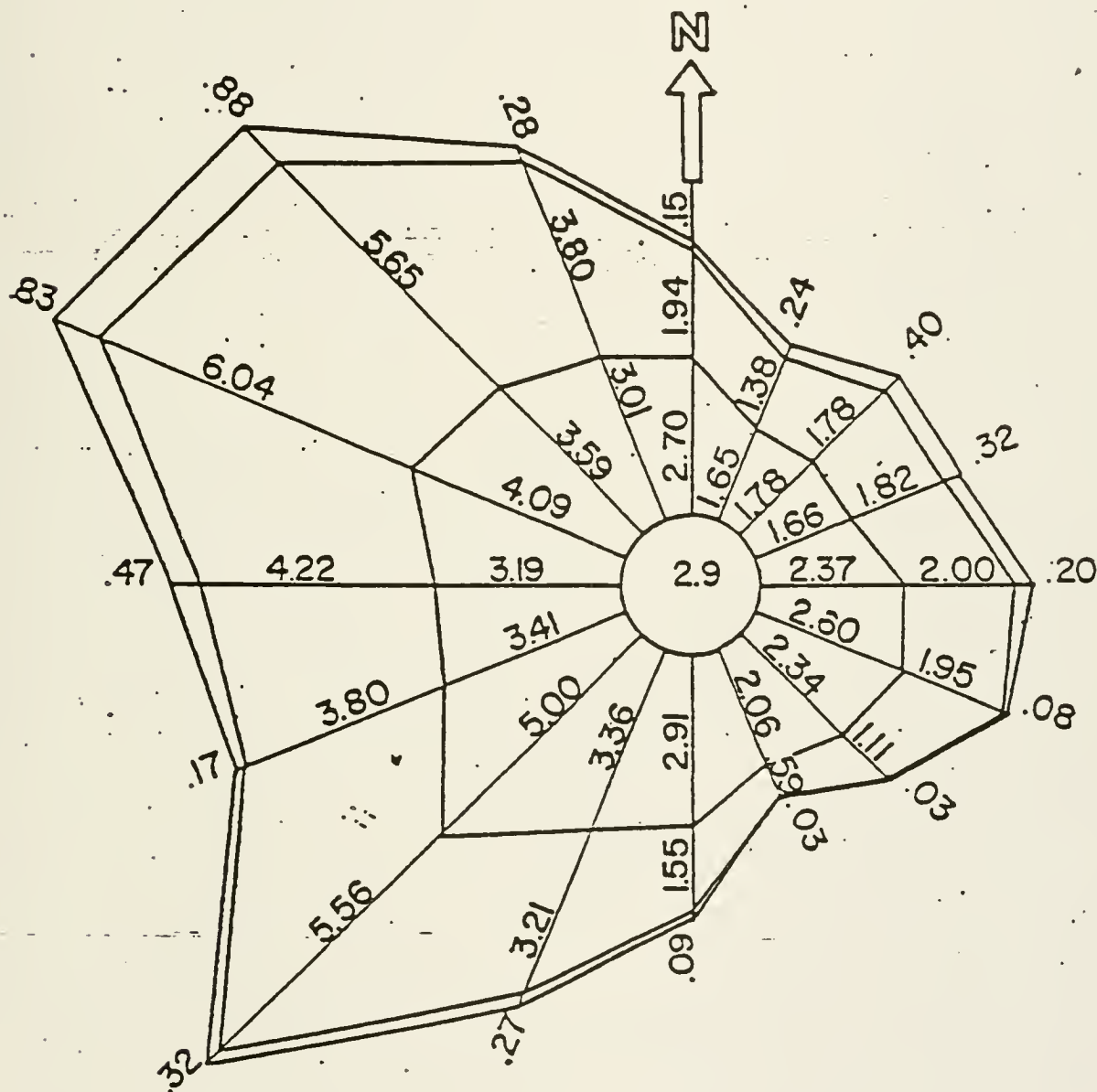


Figure 1

Figure 2

Yearly Surface Wind Rose BOSTON (Logan)

- Based on data from 1950 to 1964: hourly records.
- Figures are percent frequency.
- Categories: Center 0-3 mph
Radiating out 4-12, 13-25, over 25 mph



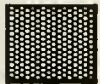
Environmental Component (Shadow)

The shadow studies prepared for the proposed building at 45 Province Street show shadow conditions at ground level at 9 AM, Noon, and 3 PM on March 21st, June 21st, September 21st, and December 21st. Shadow cast by existing buildings (including the existing parking garage on Province Street) are rendered in light grey. Any additional areas of shadow, beyond existing conditions, that would be cast by the proposed structure are rendered in dark grey.

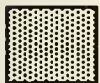
The studies for Option "A" show that on March 21st and September 21st small areas of additional shadow are cast on Chapman Place, Bosworth Street and Province Street. The new areas of shadow are similar for June 21st, except for additional shadow area on Province Street. On December 21st, no new shadow is contributed by the proposed building. The studies for Option "C" (125 feet) show approximately the same results, with some mitigation of the shadows on Province Street at 3PM on June 21st and September 21st.

Overall, the proposed development adds little new shadow to the neighborhood, and its most significant shadow increases (June 21st, 3PM) occurs during the summer.

Key to the plans:

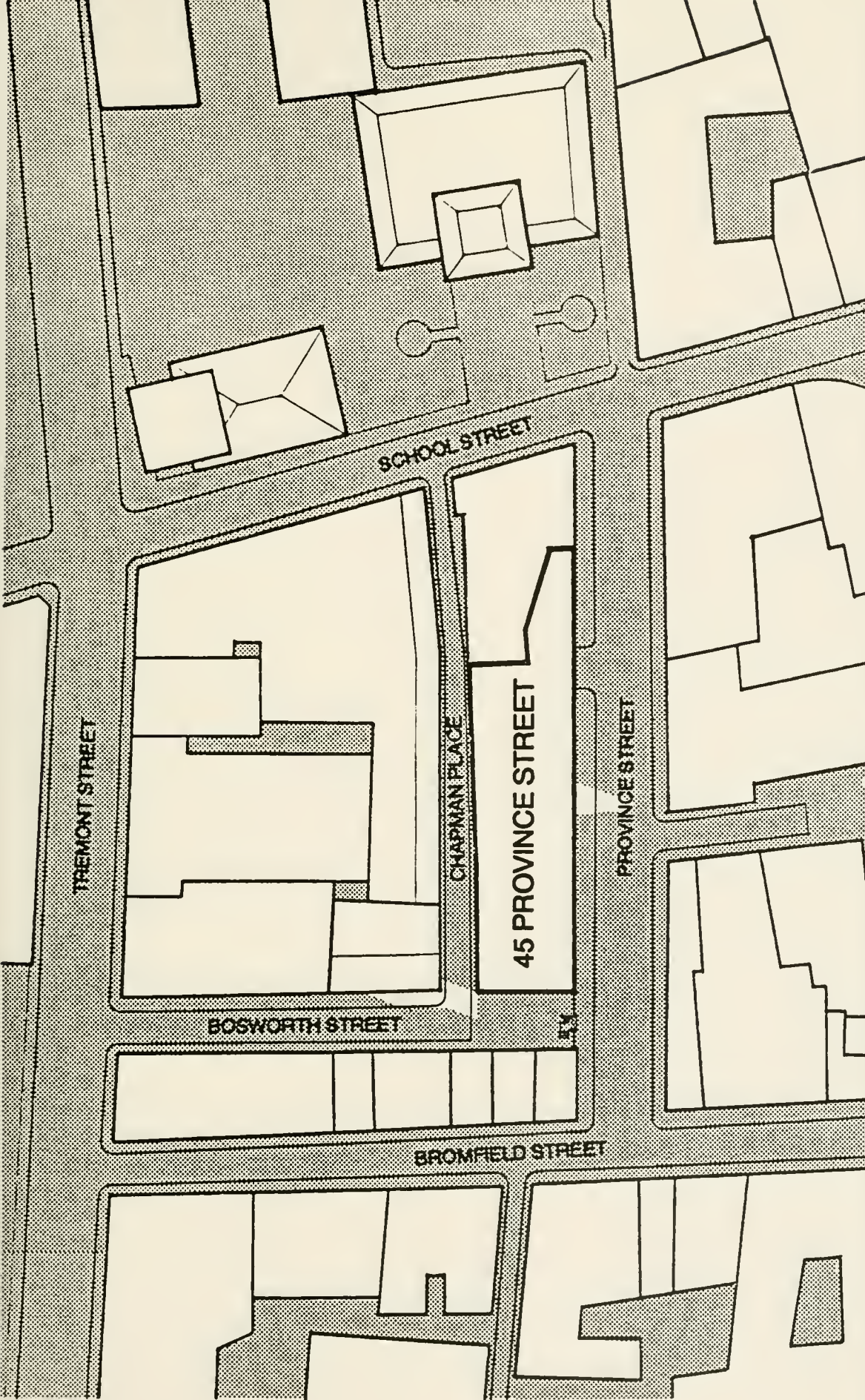


New Shadow



Existing Shadow

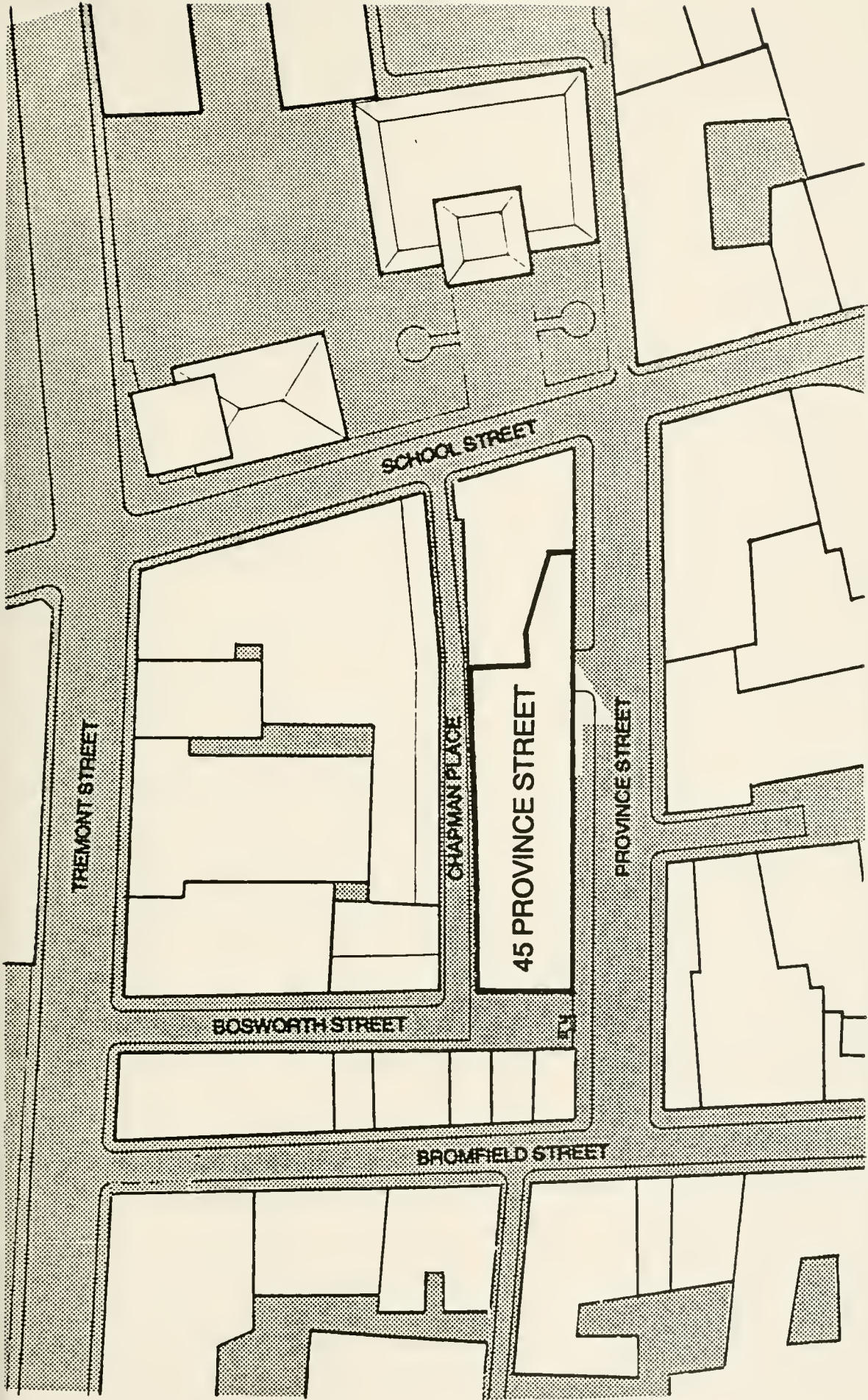
Note: As per the request in the adequacy determination, the shadow diagram for Option A for September 21 at 9:00 A.M. has been modified to show the full extent of the shadow.



December 21
A 9:00 am EST
Option
155 feet / FAR 10

The Abbey Group
45 Province Street
Boston, Massachusetts

Bruner/Cott
391 Mount Street
Cambridge, Massachusetts 02139
617 497 1400
Architect/Urban Design
Professional/Engineer/Planner



Bruner/Cott

201 New Street
Boston, Massachusetts 02109
617 497 5600
Architect/Urban Design
Environmental Planning

The Abbey Group
45 Province Street
Boston, Massachusetts

December 21
A 12:00 noon EST
Option
155 feet / FAR 10





TREMONT STREET

SCHOOL STREET

CHAPMAN PLACE

45 PROVINCE STREET

PROVINCE STREET

BOSWORTH STREET

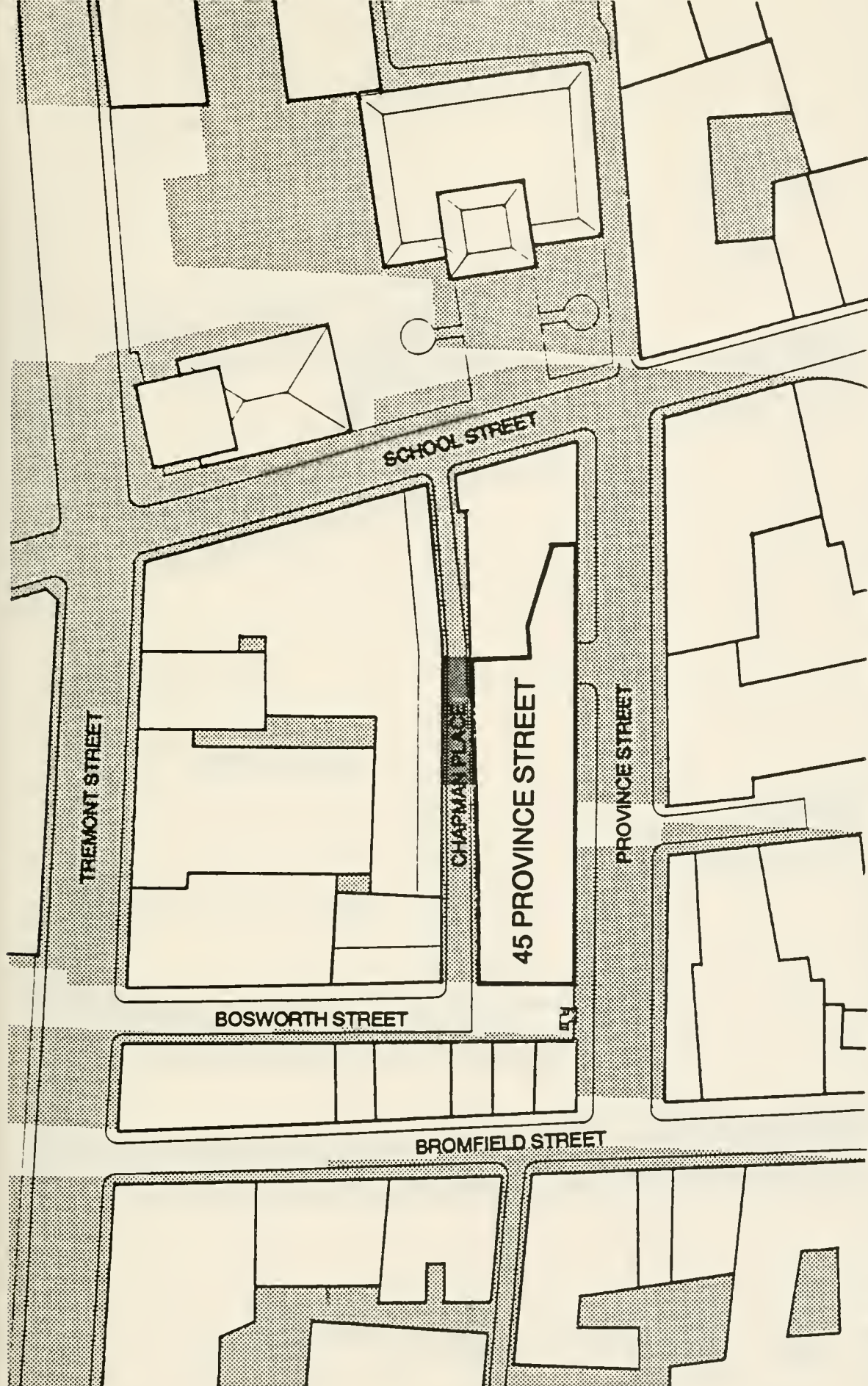
BROMFIELD STREET

Bruner/Cott

391 Mount Street
Cambridge, Massachusetts 02138
617 497 8400
Architect/Urban Design
Preservation/Space Planning

The Abbey Group
45 Province Street
Boston, Massachusetts

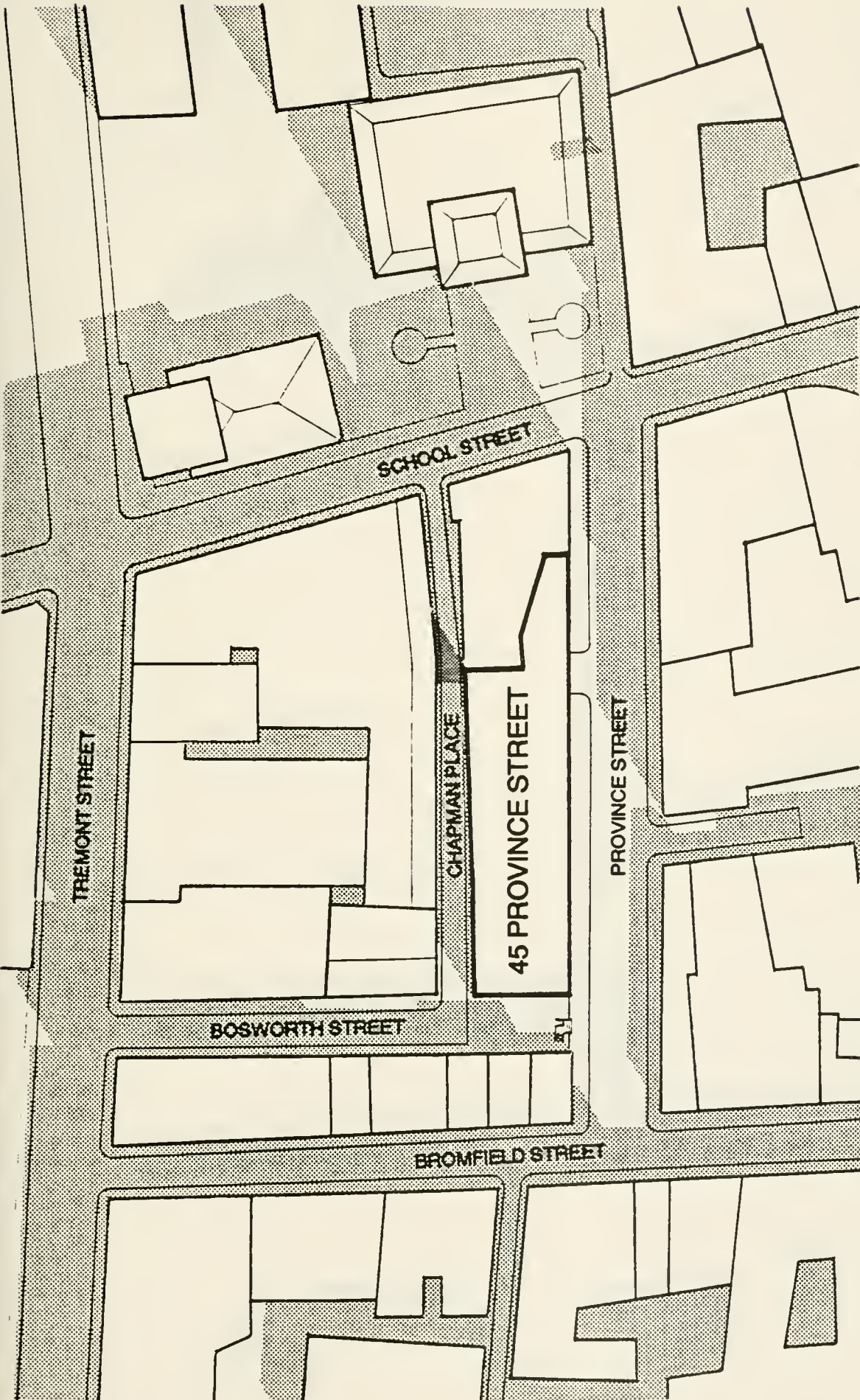
Option A
December 21
3:00 pm EST
155 feet / FAR 10



March 21
A 9:00 am EST
Option
155 feet / FAR 10

The Abbey Group
45 Province Street
Boston, Massachusetts

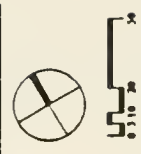
Bruner/Cott
301 Vassar Street
Cambridge, Massachusetts 02139
617 497 2400
Architect/Urban Design
Preservation/Space Planning

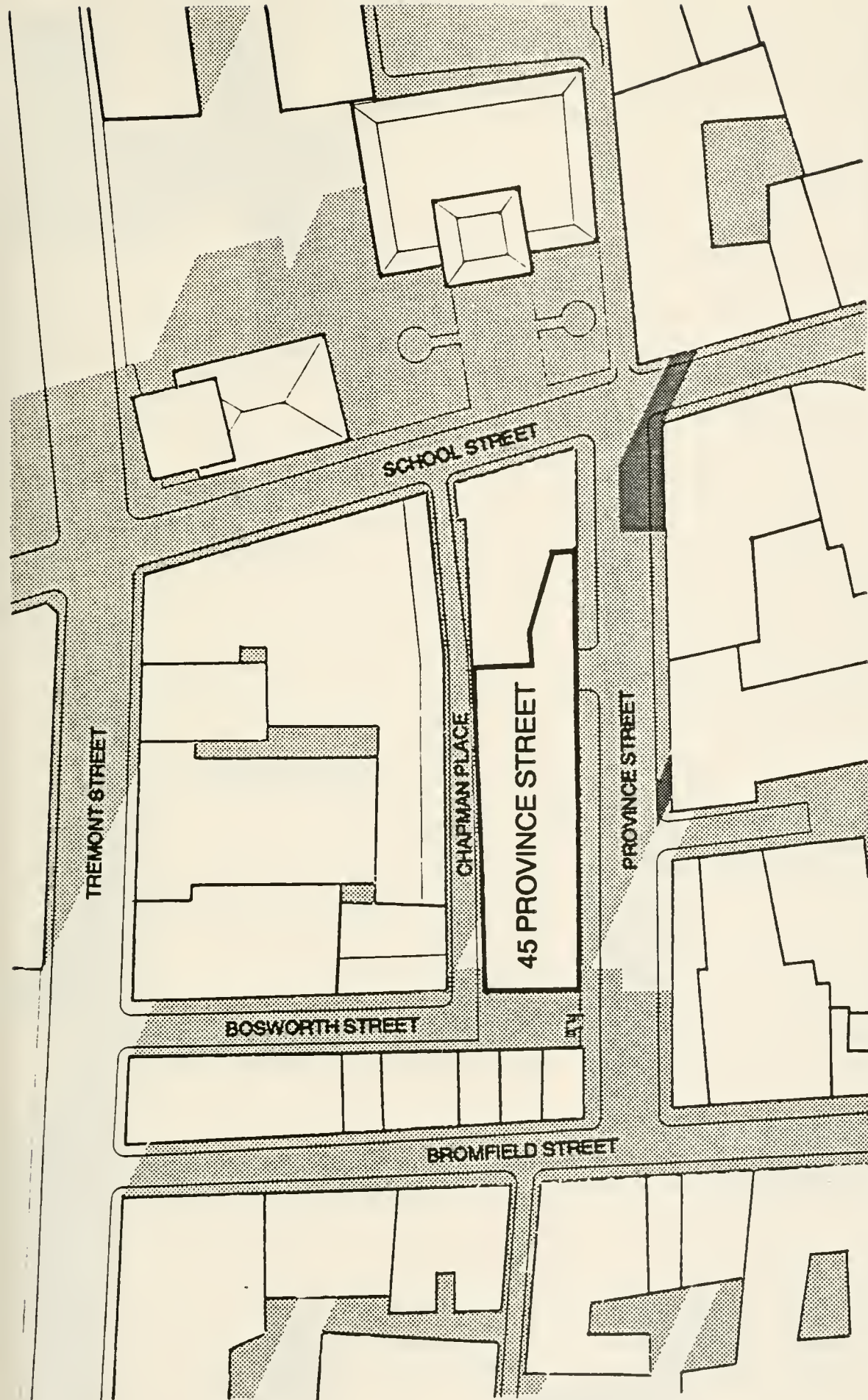


Bruner/Cott
301 Mount Street
Cambridge, Massachusetts 02139
617 492 8400
Architectural Design
Interior/Exterior Planning

The Abbey Group
45 Province Street
Boston, Massachusetts

March 21
A 12:00 noon EST
Option
155 feet / FAR 10





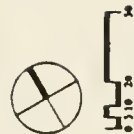
Bruner/Cott

381 Union Street
Cambridge, Massachusetts 02139
417 492 7400

Architect/Interior Design
Interior Architect/Planner

The Abbey Group
45 Province Street
Boston, Massachusetts

March 21
A 3:00 pm EST
Option
155 feet / FAR 10

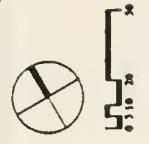


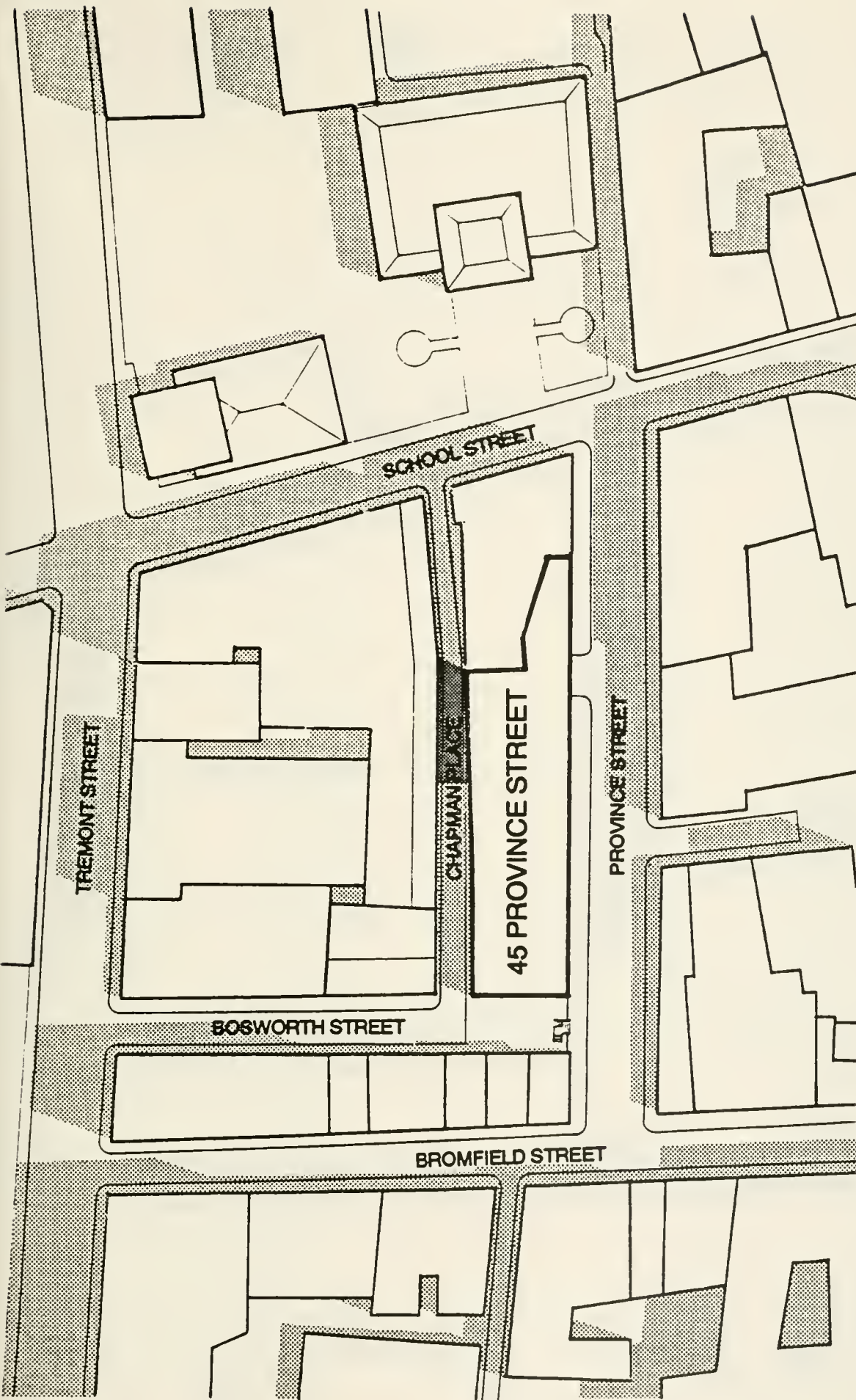


Bruner/Cott
301 Union Street
Cambridge, Massachusetts 02129
617 497 8400
Architectural Urban Design
Project Management Planning

The Abbey Group
45 Province Street
Boston, Massachusetts

June 21
A 9:00 am DST
Option
155 feet / FAR 10





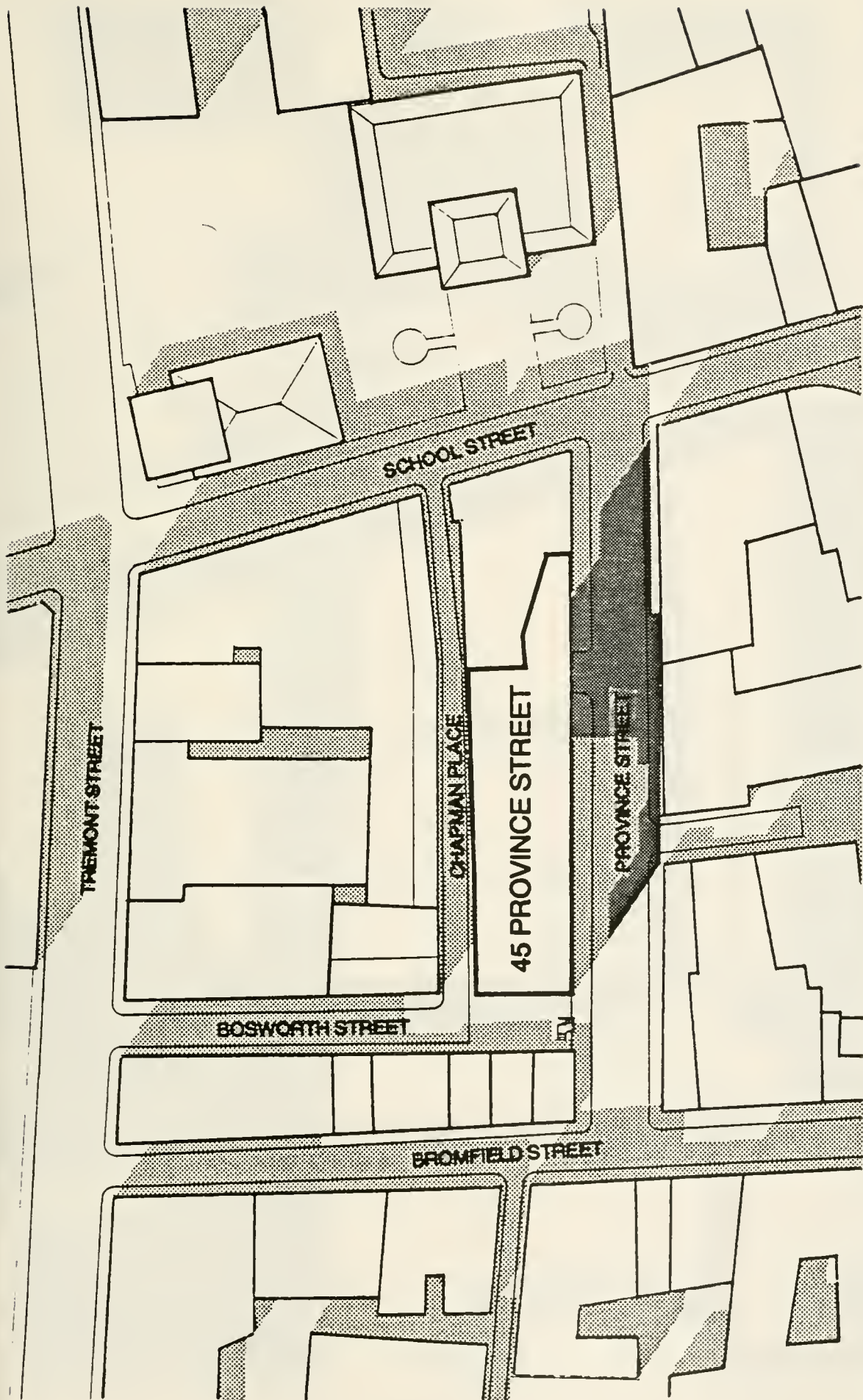
Bruner/Cott

201 New Street
Cambridge, Massachusetts 02139
617 497 1400
Architectural Urban Design
Free initial site plan

The Abbey Group
45 Province Street
Boston, Massachusetts

June 21
A 12:00 noon DST
Option
155 feet / FAR 10





Bruner/Cott

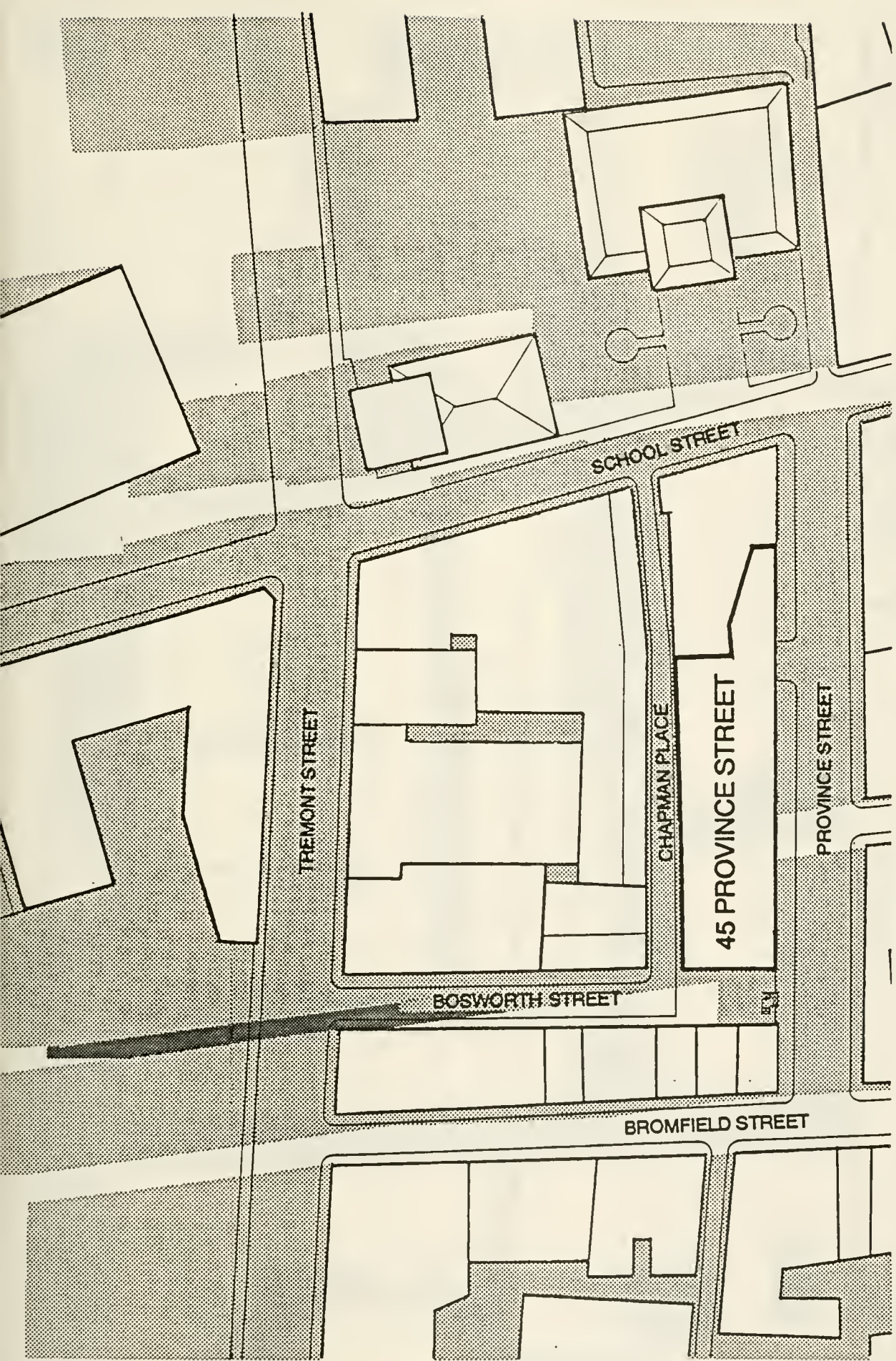
301 Vassar Street
Cambridge, Massachusetts 02139
417 482 7400

Architectural Urban Design
Pioneer Building Planning

The Abbey Group
45 Province Street
Boston, Massachusetts

June 21
A 3:00 pm DST
Option
155 feet / FAR 10



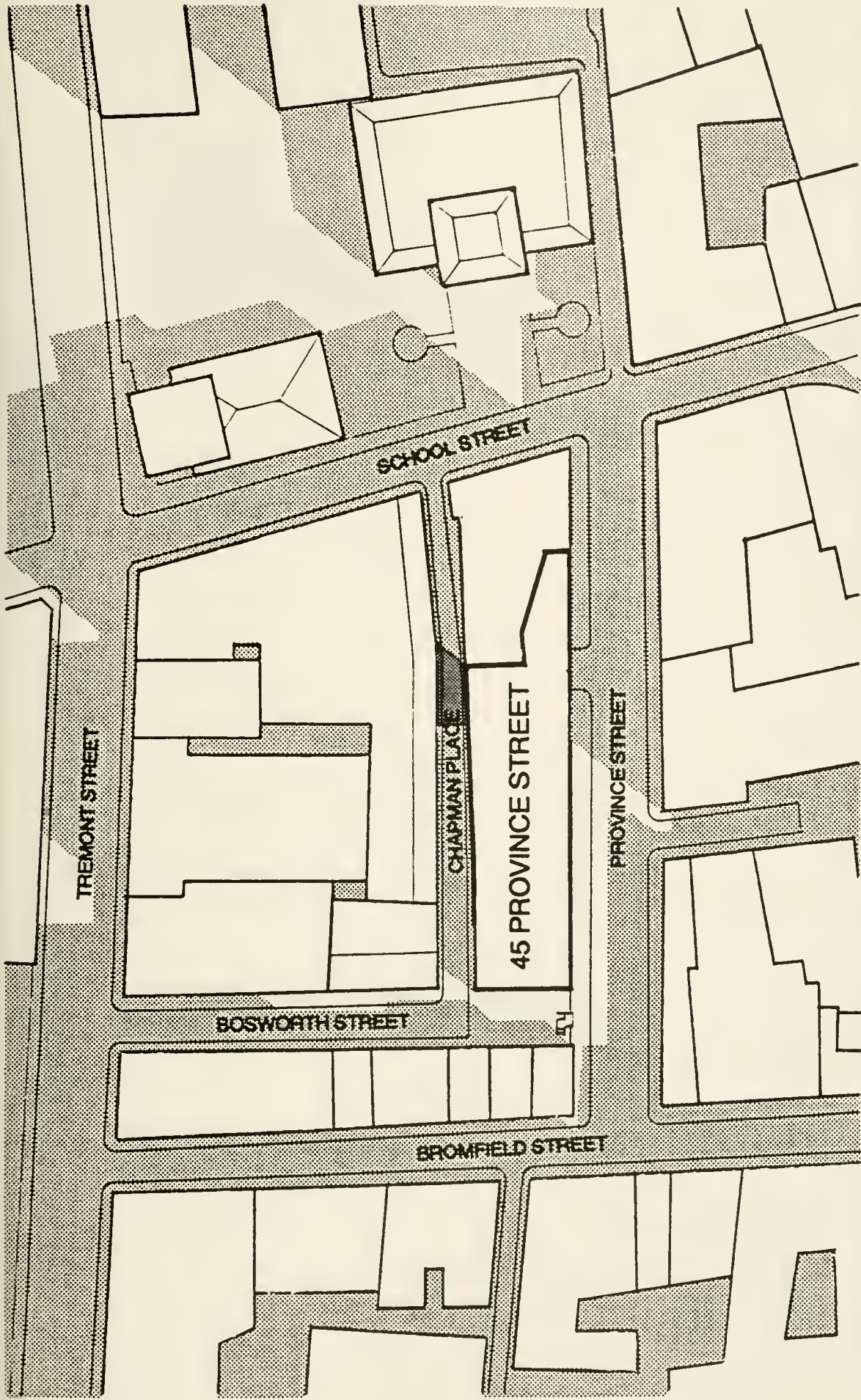


Bruner/Cott

381 Water Street
Cambridge, Massachusetts 02139
617 492 1600
Architectural/Urban Design
Preparation/Space Planning

The Abbey Group
45 Province Street
Boston, Massachusetts

September 21
A 9:00 am DST
Option
155 feet / FAR 10



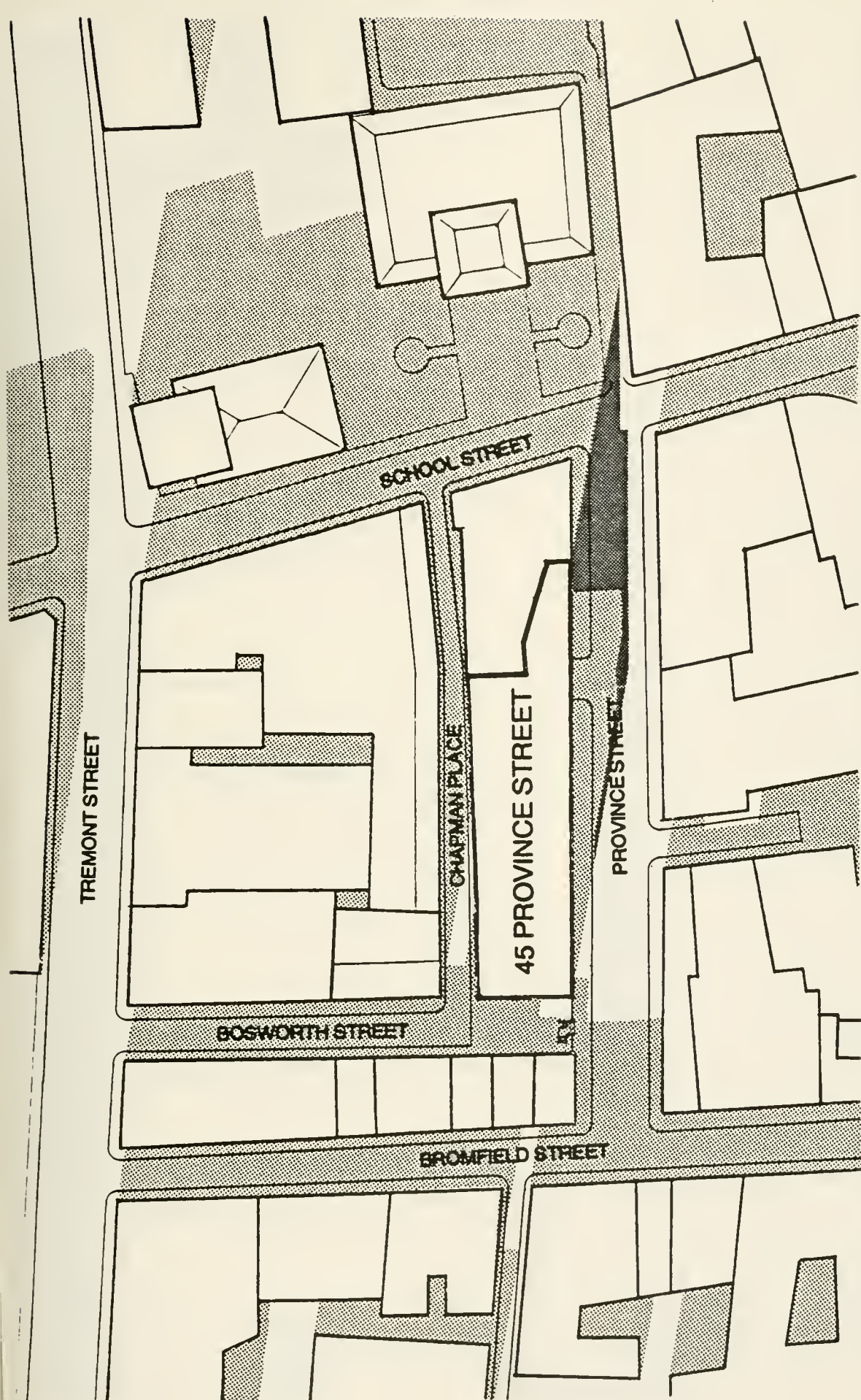
Bruner/Cott

261 Vassar Street
Cambridge, Massachusetts 02139
617 497 5400
Architectural/Interior Design
Project/Interior Planning

The Abbey Group

45 Province Street
Boston, Massachusetts

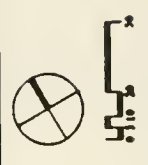
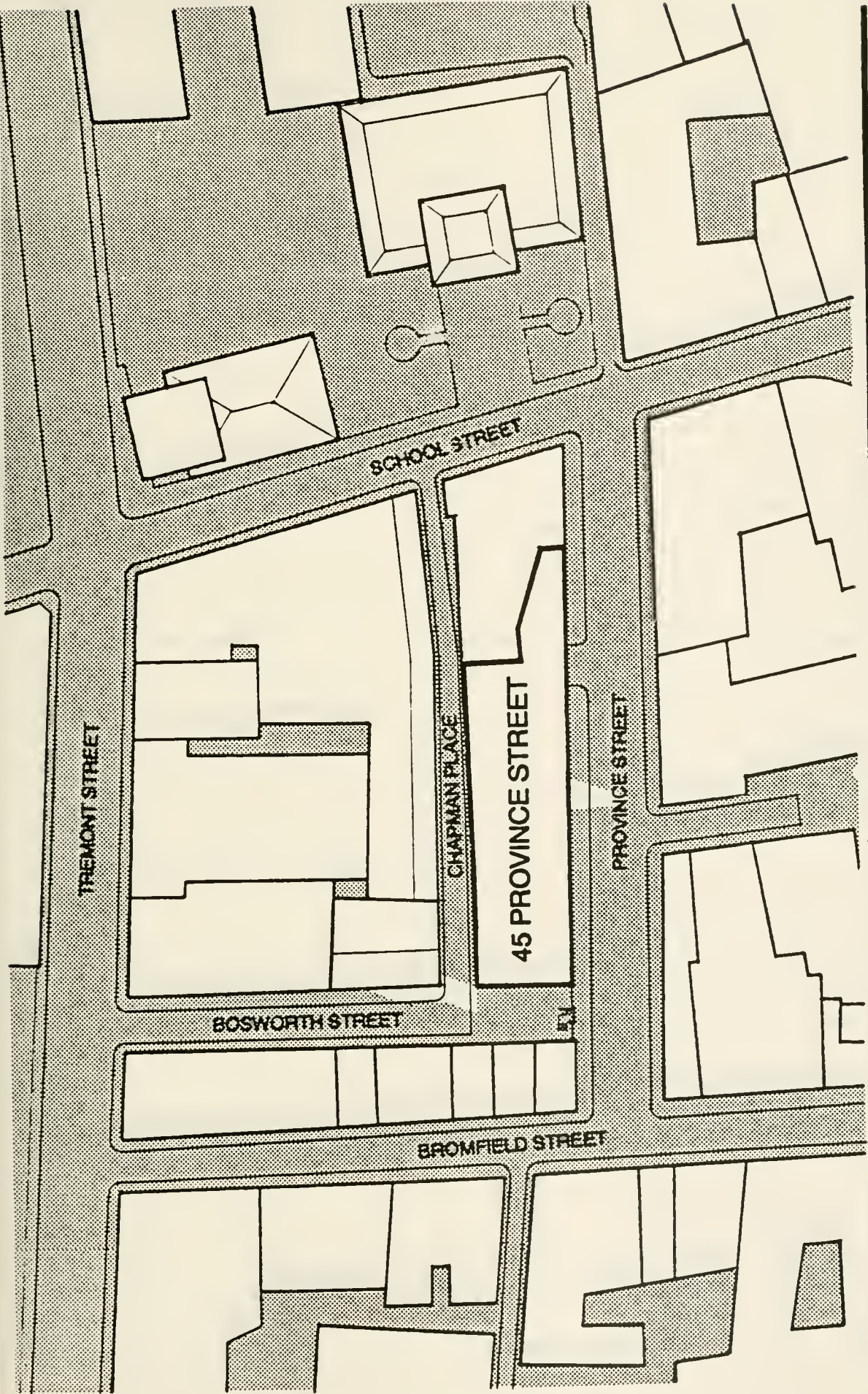
September 21
A 12:00 noon DST
Option
155 feet / FAR 10



A September 21
3:00 pm DST
Option
155 feet / FAR 10

The Abbey Group
45 Province Street
Boston, Massachusetts

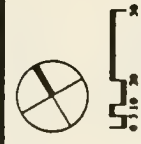
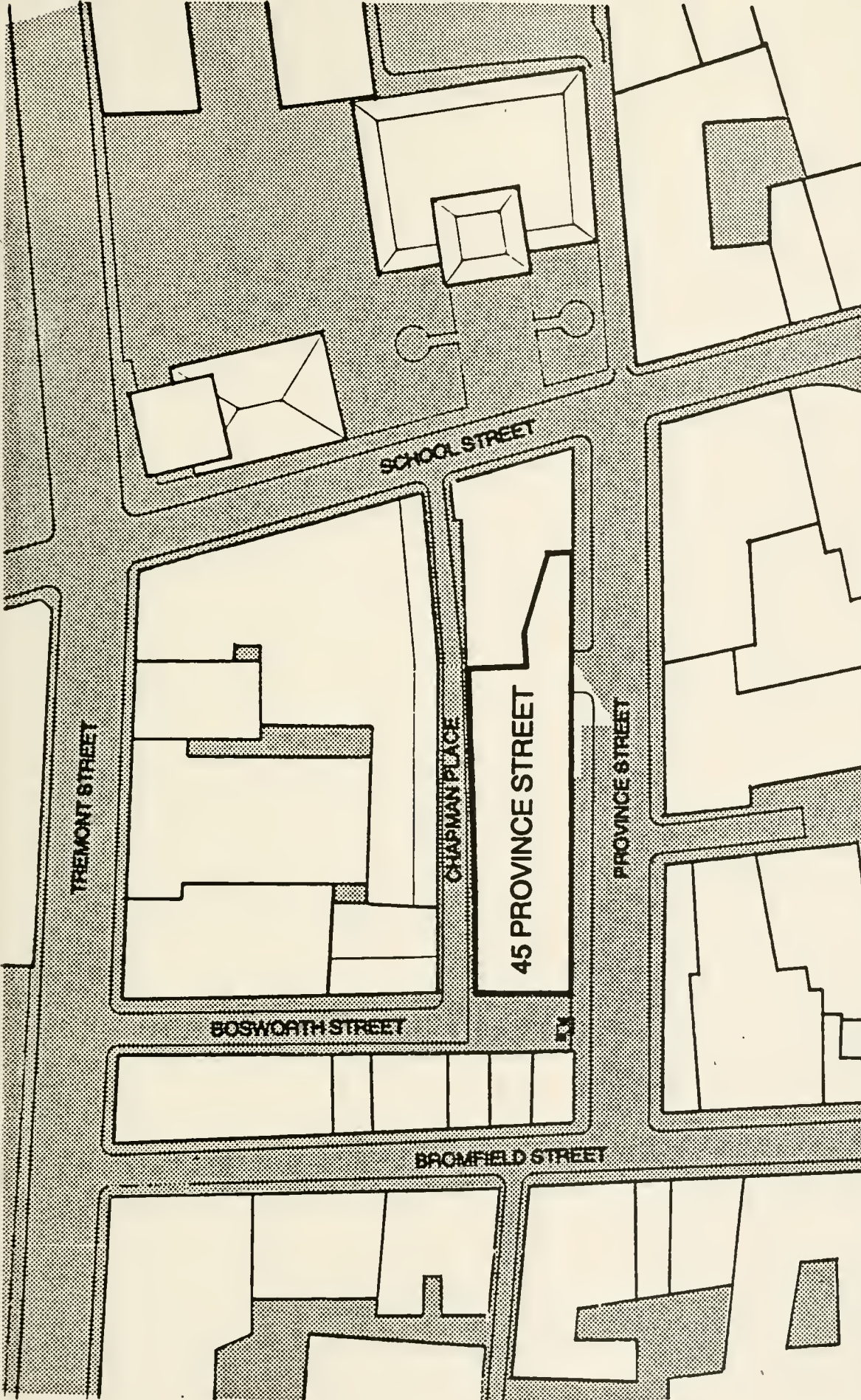
Bruner/Cott
301 Mount Street
Cambridge, Massachusetts 02138
617 497 5400
Architectural/Interior Design
Professional Office Planning



C December 21
9:00 am EST
Option
125 feet / FAR 8

The Abbey Group
45 Province Street
Boston, Massachusetts

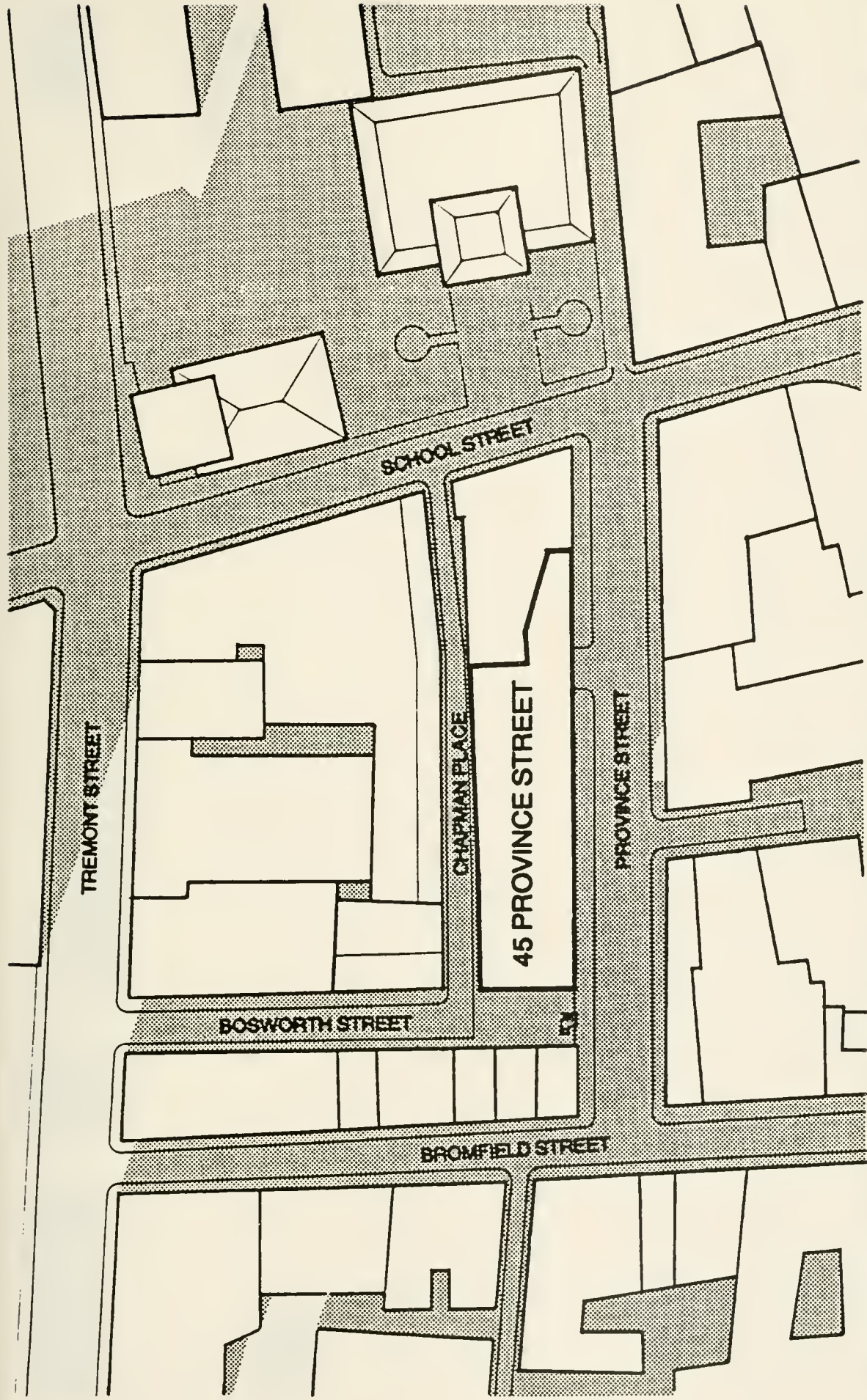
Bruener/Cott
28 West Street
Cambridge, Massachusetts 02139
617 487 1810
Architects/Interior Designers



C December 21
12:00 noon EST
Option
125 feet / FAR 8

The Abbey Group
45 Province Street
Boston, Massachusetts

Bruner/Cott
281 New Street
Cambridge, Massachusetts 02139
617 497 5400
Architectural Firm Design
Professional/Engineer Planning



C December 21
3:00 pm EST
Option
125 feet / FAR 8

The Abbey Group
45 Province Street
Boston, Massachusetts

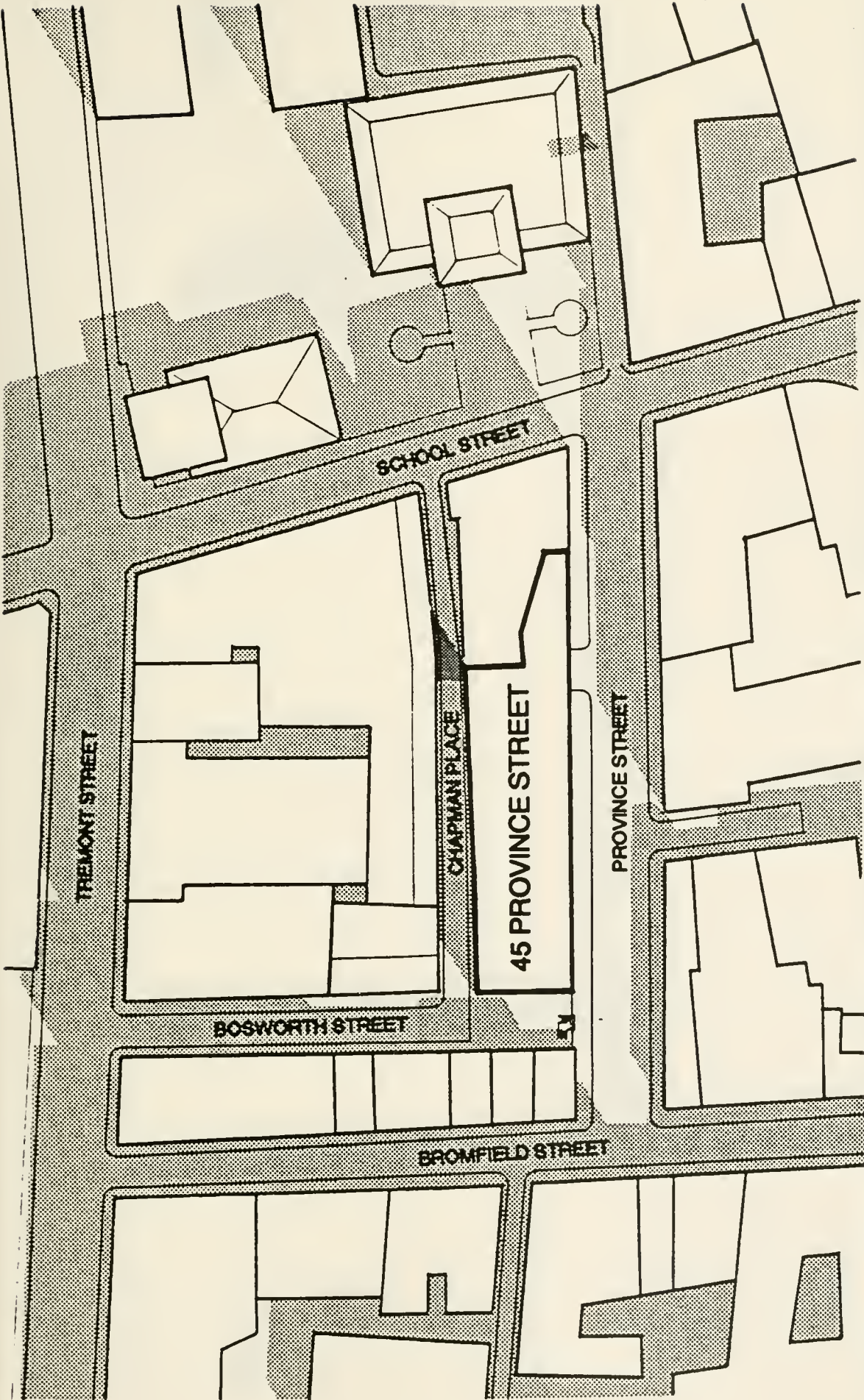
Bruner/Cott
201 Mount Street
Cambridge, Massachusetts 02138
617 497 1400
Architectural/Interior Design
Interior/Exterior Planning



March 21
 9:00 am EST
 Option
 125 feet / FAR 8

The Abbey Group
 45 Province Street
 Boston, Massachusetts

Bruner/Cott
 280 Mount Street
 Cambridge, Massachusetts 02139
 617 497 0000
 Architecture/Urban Design
 Planning/Interior Planning

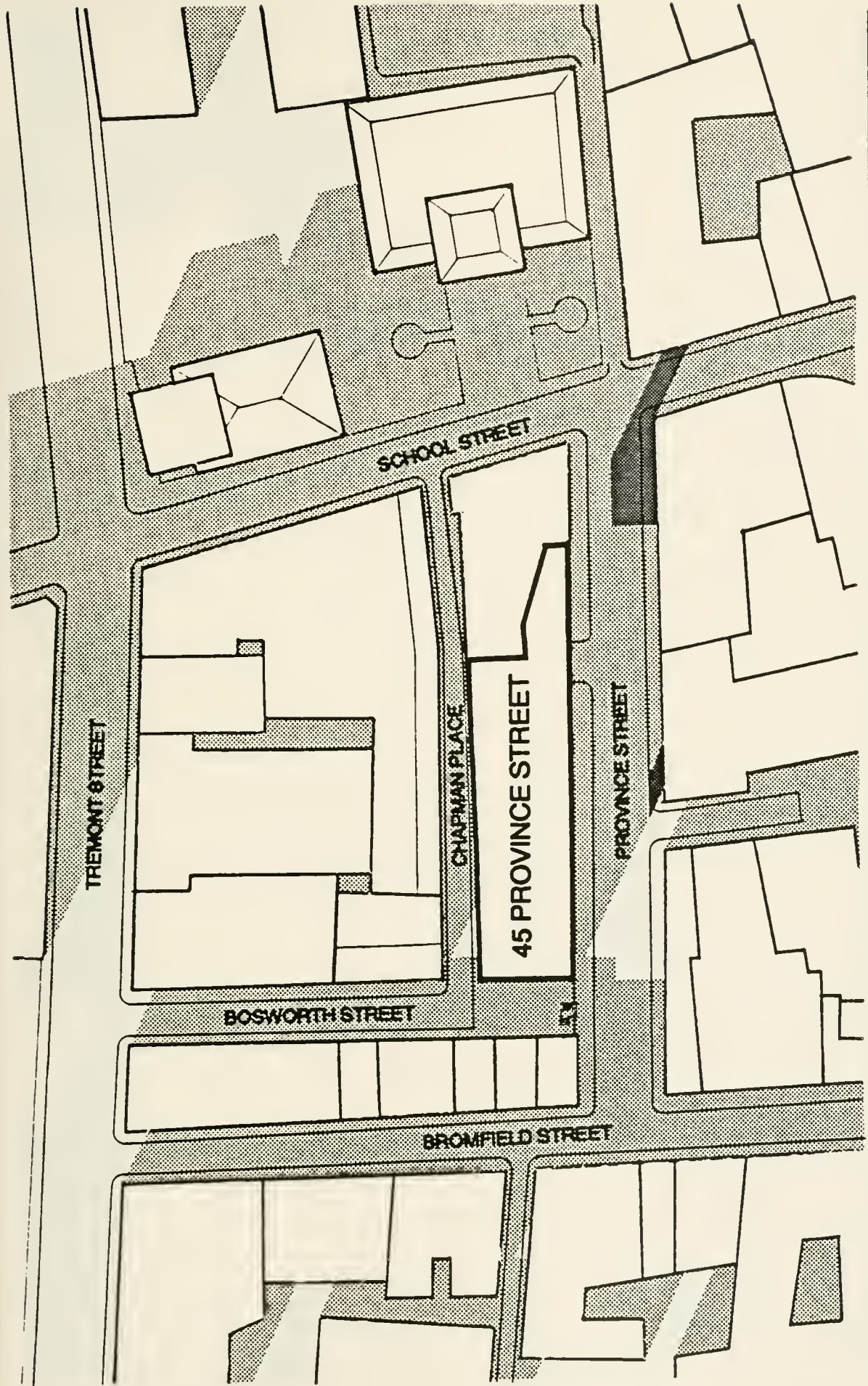


C March 21
12:00 noon EST
Option
125 feet / FAR 8

The Abbey Group
45 Province Street
Boston, Massachusetts

Bruner/Cott

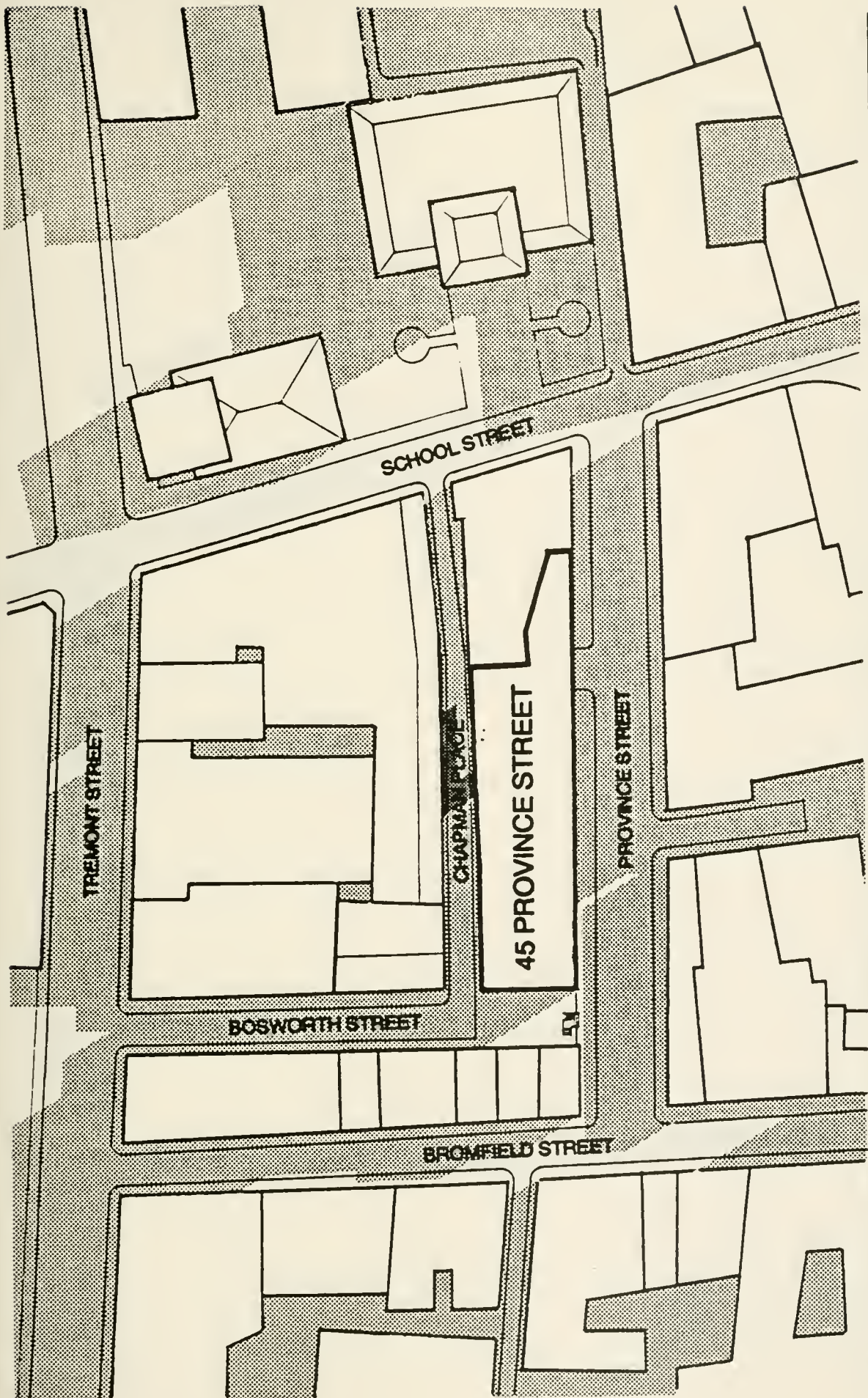
301 Union Street
Cambridge, Massachusetts 02130
617 497 5400
Architectural/Urban Design
Photocopying: Prohibited



Bruner/Cott
 201 Walnut Street
 Cambridge, Massachusetts 02139
 617 497 1800
 Architecture/Urban Design
 Planning/Interior Planning

The Abbey Group
 45 Province Street
 Boston, Massachusetts

C March 21
 3:00 pm EST
 Option
 125 feet / FAR 8



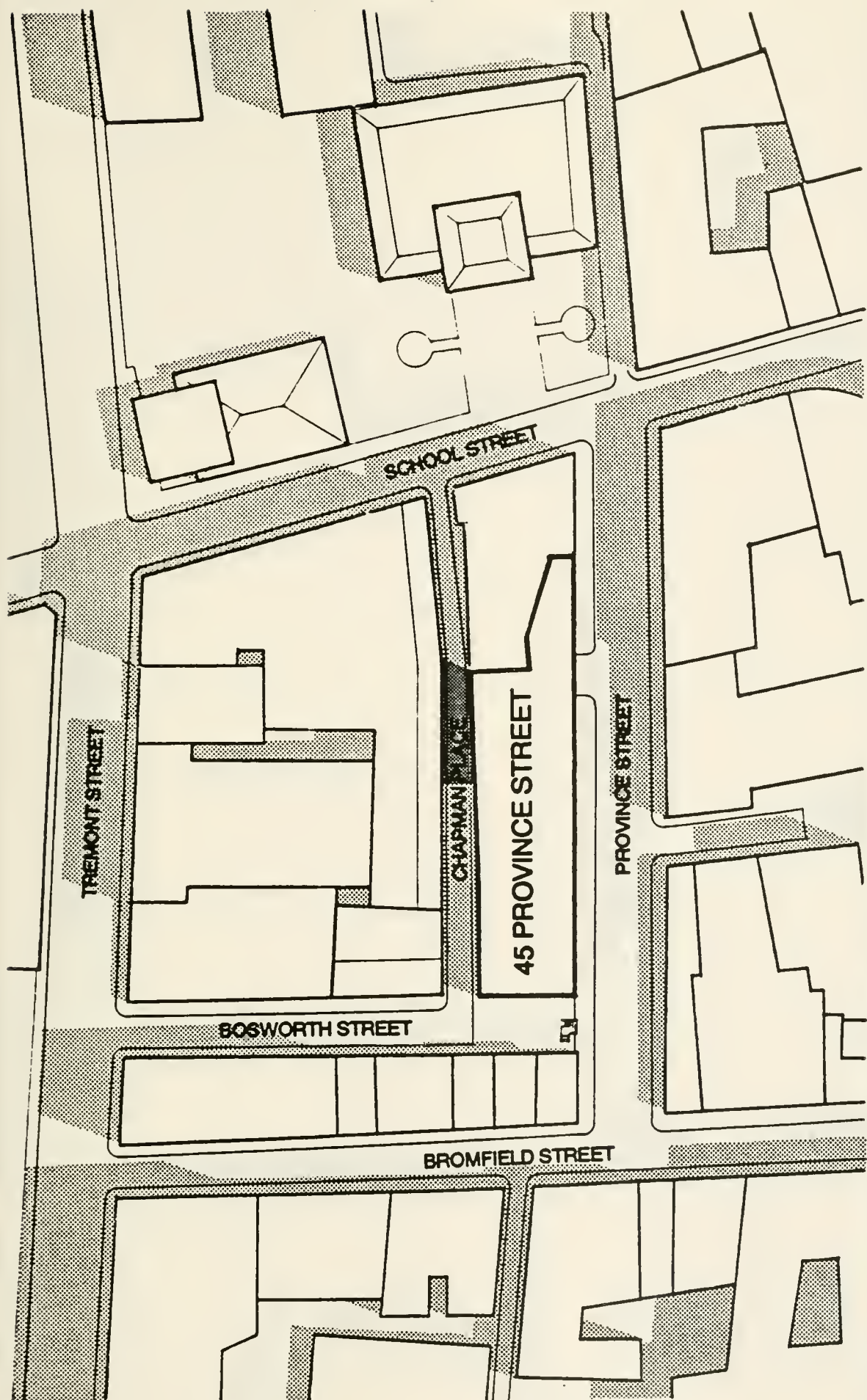
Bruner/Cott

381 Mount Street
Cambridge, Massachusetts 02139
617 497 3300
Architectural Design
Interior Design / Planning

The Abbey Group

45 Province Street
Boston, Massachusetts

June 21
9:00 am DST
Option
125 feet / FAR 8

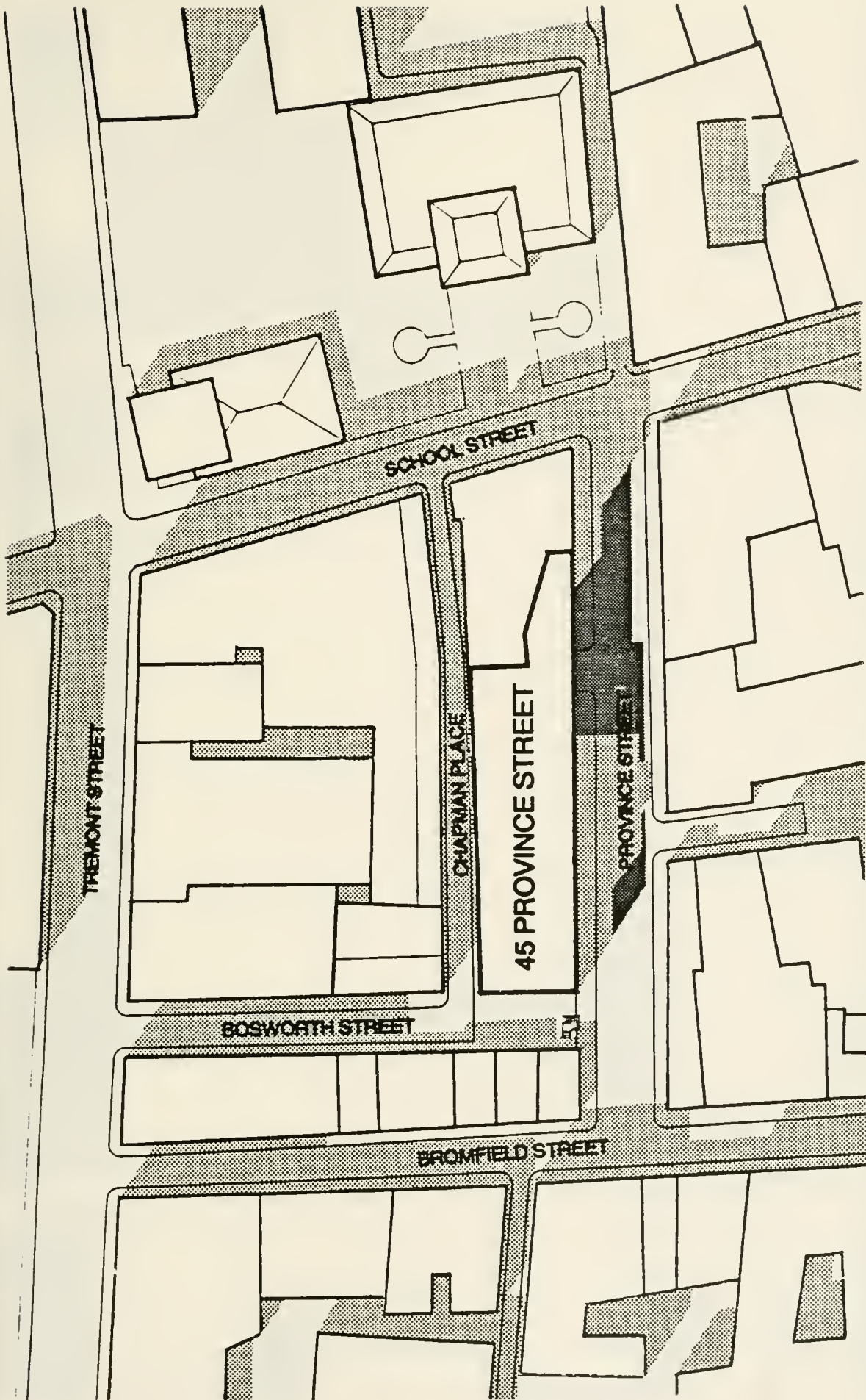


Bruner/Cott

395 Mount Street
Cambridge, Massachusetts 02138
417 497 1400
Architectural/Interior Design
Professional/Engineer Planning

The Abbey Group
45 Province Street
Boston, Massachusetts

June 21
12:00 noon DST
Option
125 feet / FAR 8



Bruner/Cott

301 Mount Street
Cambridge, Massachusetts 02138
617 497 1888
Architect/Urban Design
Professional/Engineer/Planner

The Abbey Group
45 Province Street
Boston, Massachusetts

Option
125 feet / FAR 8
C June 21 3:00 pm DST

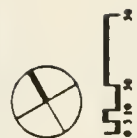


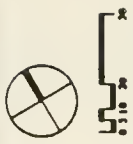
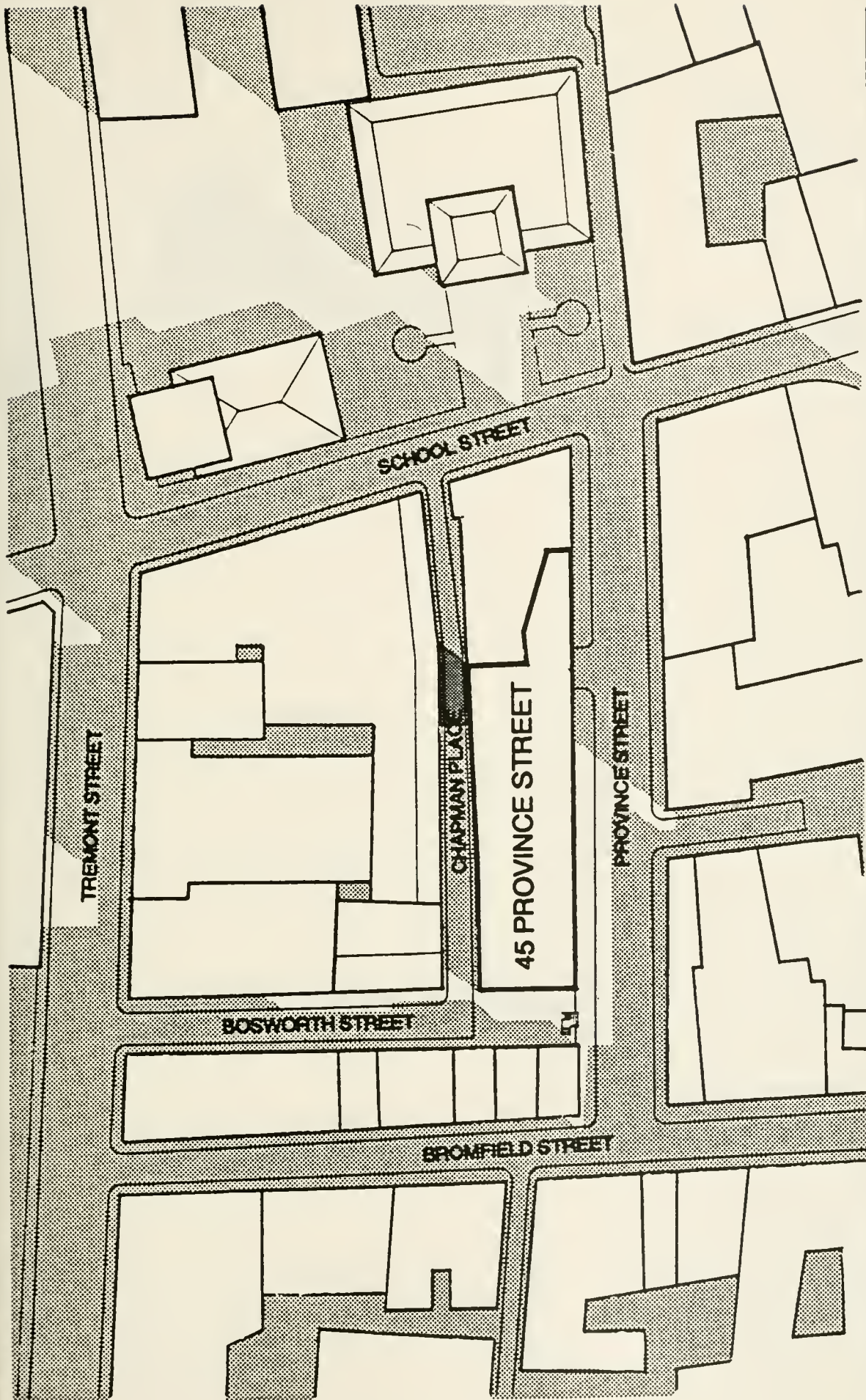
Bruner/Cott

390 Mount Street
Cambridge, Massachusetts 02139
617 492 1400
Architectural/Interior Design
Professional/Professional Planning

The Abbey Group
45 Province Street
Boston, Massachusetts

C September 21
9:00 am DST
Option
125 feet / FAR 8





C September 21
 12:00 noon DST
 Option
 125 feet / FAR 8

The Abbey Group
 45 Province Street
 Boston, Massachusetts

Bruner/Cott

301 Mount Street
 Cambridge, Massachusetts 02139
 617 497 1499
 Architectural Urban Design
 Free consultation Planning



C September 21
3:00 pm DST
Option
125 feet / FAR 8

The Abbey Group
45 Province Street
Boston, Massachusetts

Bruner/Cott
345 Mount Street
Cambridge, Massachusetts 02139
417 497 1400
Architectural/Interior Design
Photography/Printing



Tech Environmental, Inc.

Reservoir Place
1601 Trapelo Road
Waltham, MA 02154
(617) 890-2220

April 28, 1989

Mr. David Epstein
The Abbey Group
575 Boylston Street
Boston, Mass. 02116

Re: Air Quality Analysis
Province Street Parking Garage

Dear Mr. Epstein:

Tech Environmental, Inc. has completed a re-analysis of the maximum carbon monoxide (CO) concentrations from the proposed Province Street parking garage, including the change from 380 to 440 parking spaces for Option A. These impacts were predicted at three sensitive receptors representing the pedestrian sidewalk on Province Street near the garage exhaust, the Parker House Hotel, and the nearest building entrance to the garage exhaust.

All predicted CO levels for both Options A & B are safely in compliance with the National Ambient Air Quality Standards (NAAQS), which are designed to protect public health and welfare, for the worst case. A discussion of the technical analysis for Option A follows.

Parking Garage Ventilation System

The Province Street garage is designed to store 440 motor vehicles on seven underground floors. The garage will be ventilated continuously, when occupied, by fans supplying a total of 112,000 cubic feet per minute of fresh air. The exhaust will occur through a louver 10 feet high by 14 feet wide and located 18 inches above grade at the corner of the proposed garage entrance.

For Option B, the garage is designed to store 140 motor vehicles on three underground floors. The garage will be ventilated continuously, when occupied, by fans supplying a total of 40,000 cubic feet per minute of fresh air. The exhaust will occur through a louver 9 feet high by 5 feet wide and located 18 inches above grade at the corner of the proposed garage entrance.

Peak Traffic Volumes

From data supplied by Vanasse Hangen Brustlin, the estimated peak 1-hour entering and exiting volumes for the garage are 12 and 151 vehicles per hour, respectively. For the peak 8-hour period, it is assumed that 375 of the spaces turnover once (all-day parkers) and

that the remaining 65 spaces turnover three times, producing entering and exiting volumes of 72 and 72 vph, respectively. There is one entrance and one exit lane. The exit lane will be controlled by a combined card reader/pay booth and is assumed to have a maximum capacity of 300 vph.

Motor Vehicle Emission Rates

The EPA MOBILE-3 emissions model was run for the year 1991. Other assumptions used in running the model included the use of an ambient temperature of 30°F (the December average in Boston), and a cold/hot start mix of 50%/10% for the 1-hour and 20.6%/27.3% for the 8-hour periods, values recommended by EPA. The garage CO emission rate for light-duty vehicles was found to be 11.78 grams/minute for the 1-hour and 7.07 grams/minute for the 8-hour period. These rates represent a speed of 10 mph which averages travel in the garage at 15 mph and idling at the exit gate. These are idling emissions for one vehicle. The MOBILE-3 output is included at the end of this report.

Next, it was calculated that it takes an average of 144 seconds to enter the facility and travel an average distance of 575 meters to park a vehicle at the end of the fourth level down. In exiting the parking garage, it takes an average time of 151 seconds to unpark from a 90° angle space, travel from the end of the fourth level down and pass through the combined card reader-ticket booth upon exiting. These scenarios assume an average travel speed of 4.5 m/s (10 mph) throughout the garage and that a car will be delayed 5 seconds entering the facility and 12 seconds exiting the facility through the ticket booth.

The assumed traffic volumes using the garage for the peak 1-and 8-hour periods are as follows:

1-hour	Enter - 12 vph
	Exit - 151 vph

8-hour	Enter - 72 vph
	Exit - 72 vph

The garage CO emission rates were then calculated as:

$$\begin{aligned} Q \text{ enter}-(1 \text{ hr}) &= 11.78 \text{ g/min} \times 2.4 \text{ min/car} \times 12 \text{ cars/hours} \\ &\quad \times 1/3600 \text{ hr/sec} \\ &= 0.09 \text{ g/s} \end{aligned}$$

$$\begin{aligned} Q \text{ exit}-(1 \text{ hr}) &= 11.78 \text{ g/min} \times 2.5 \text{ min/car} \times 151 \text{ cars/hour} \\ &\quad \times 1/3600 \text{ hr/sec} \\ &= 1.24 \text{ g/s} \end{aligned}$$

$$\begin{aligned} Q \text{ exit-(8 hr)} &= 7.07 \text{ g/min} \times 2.4 \text{ min/car} \times 72 \text{ cars/min} \\ &\quad \times 1/3600 \text{ hr/sec} \\ &= 0.34 \text{ g/s} \end{aligned}$$

$$\begin{aligned} Q \text{ exit-(8 hr)} &= 7.07 \text{ g/min} \times 2.5 \text{ min/car} \times 72 \text{ cars/min} \\ &\quad \times 1/3600 \text{ hr/sec} \\ &= 0.35 \text{ g/s} \end{aligned}$$

Total Emission rates for each case are:

$$\begin{aligned} Q \text{ (1 hr)} &= 0.09 \text{ g/s} + 1.24 \text{ g/s} = 1.33 \text{ g/s} \\ Q \text{ (8 hr)} &= 0.34 \text{ g/s} + 0.35 \text{ g/s} = 0.69 \text{ g/s} \end{aligned}$$

Garage Exhaust Air Concentrations

This analysis assumes that emissions are exhausted at an average height of 6.5 feet above grade through a louver with a cross-sectional area of 140 square feet. It was calculated that CO concentrations at the point of emissions release would be:

1 hr: 21.9 ppm

8 hr: 11.4 ppm

Impacts on Sensitive Receptors

CO concentrations were calculated at three sensitive receptors. Conservative urban background values of 5.0 ppm for a 1-hour period and 3.0 ppm for an 8 hour period were used to estimate the diffuse level of CO in the air from other sources. Impacts at the sensitive receptors were calculated using the Halitsky gas diffusion model to estimate dilution of the exhaust gases. Assumptions used in the model included a conservative turbulence factor of 2.0 (the scale can vary from 2.0-4.0, with 2.0 being the least turbulent and 4.0 being the most turbulent), and a minimum wind speed of 1.0 m/s. The first receptor is located on the center of the sidewalk in line with the louver, which is 14.3 ft (4.7 m) from the center of the louver, at 5.0 feet above the ground. The second receptor is the nearest window of the Omni Parker Hotel. Because the Omni Parker Hotel is behind the Province Street garage and the air exhaust louver is at the front entrance, exhaust air must rise over and across the new building to traverse the shortest distance between the exhaust louver, and the Omni Parker Hotel. Given the Province Street building will rise 155 feet above grade, the shortest distance to the nearest window of the Omni Parker Hotel is 233.5 ft (71.2 m). The third receptor is the door of Friar Tuck's Pub which is located 55 ft (16.8 m) across Province Street from the center of the air exhaust louver. All concentration results can be found in Table 1.

Comparison of Receptor Concentrations to Air Quality Standards

Results in Table 1 show that the highest CO concentration (plus background) will be 6.9 ppm for the worst-case 1-hour period and 4.1 ppm for the worst-case 8-hour period, both occurring at the receptor at the sidewalk near the air exhaust louver. Since this receptor is the closest to the exhaust louver, this is the expected result. All predicted CO concentrations are safely in compliance with the NAAQS. The highest 1-hour value is only 20% of the 35 ppm NAAQS, and the highest 8-hour value is only 46% of the 9 ppm NAAQS. CO concentrations at the nearest point of the Omni Parker Hotel are lower than those of the other two receptors and with values for the 1-hour period of 5.8 ppm (17% of the 35 ppm NAAQS) and 3.4 ppm (38% of the 9 ppm NAAQS) for the 8-hour period, which are well below the acceptable standards. Thus, we conclude that the operation of the proposed parking garage will not expose any sensitive receptor to adverse air quality levels.

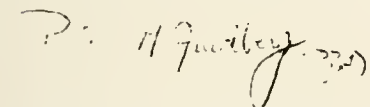
Recommendation

We recommend that the building's owners ensure that the full ventilation system is running continuously during the hours when the garage may be used. That condition was assumed in this analysis. Intermittent or partial operation of the system could allow CO levels to accumulate to dangerous levels in the garage and subsequent exhaust air.

Please call if you have any questions.

Sincerely,

TECH ENVIRONMENTAL, INC.



Peter H. Guldberg, C.C.M.
Environmental Scientist

PHG/lg/R2

TABLE 1

1-AND 8-HOUR CONCENTRATIONS AT
SENSITIVE RECEPTORS PLUS BACKGROUND (ppm)

Receptor Location	Receptor Concentration	
	1-hour	8-hour
1. Sidewalk near air exhaust louver	6.9	4.1
2. Omni Parker Hotel	5.8	3.4
3. Friar Tuck's Pub	6.5	3.8
National Ambient Air Quality Standards (NAAQS)	35.0	9.0

PROGRAM SELECTED:

START YEAR (JANUARY 1): 1983
 FE-1981 MYR STRINGENCY RATE: 13%
 MECHANIC TRAINING PROGRAM?: NO
 FIRST MODEL YEAR COVERED: 1972
 LAST MODEL YEAR COVERED: 1992
 VEHICLE TYPES COVERED: LDGV, LDGT1, LDGT2
 191 & LATER MYR TEST TYPE: IDLE
 191 & LATER MYR TEST CUTPOINTS: 1.2% ICO / 220 PPM IHC

HC EMISSION FACTORS INCLUDE EVAPORATIVE HC EMISSION FACTORS.

APPLIED VEH REGISTRATION DISTRIBUTIONS.

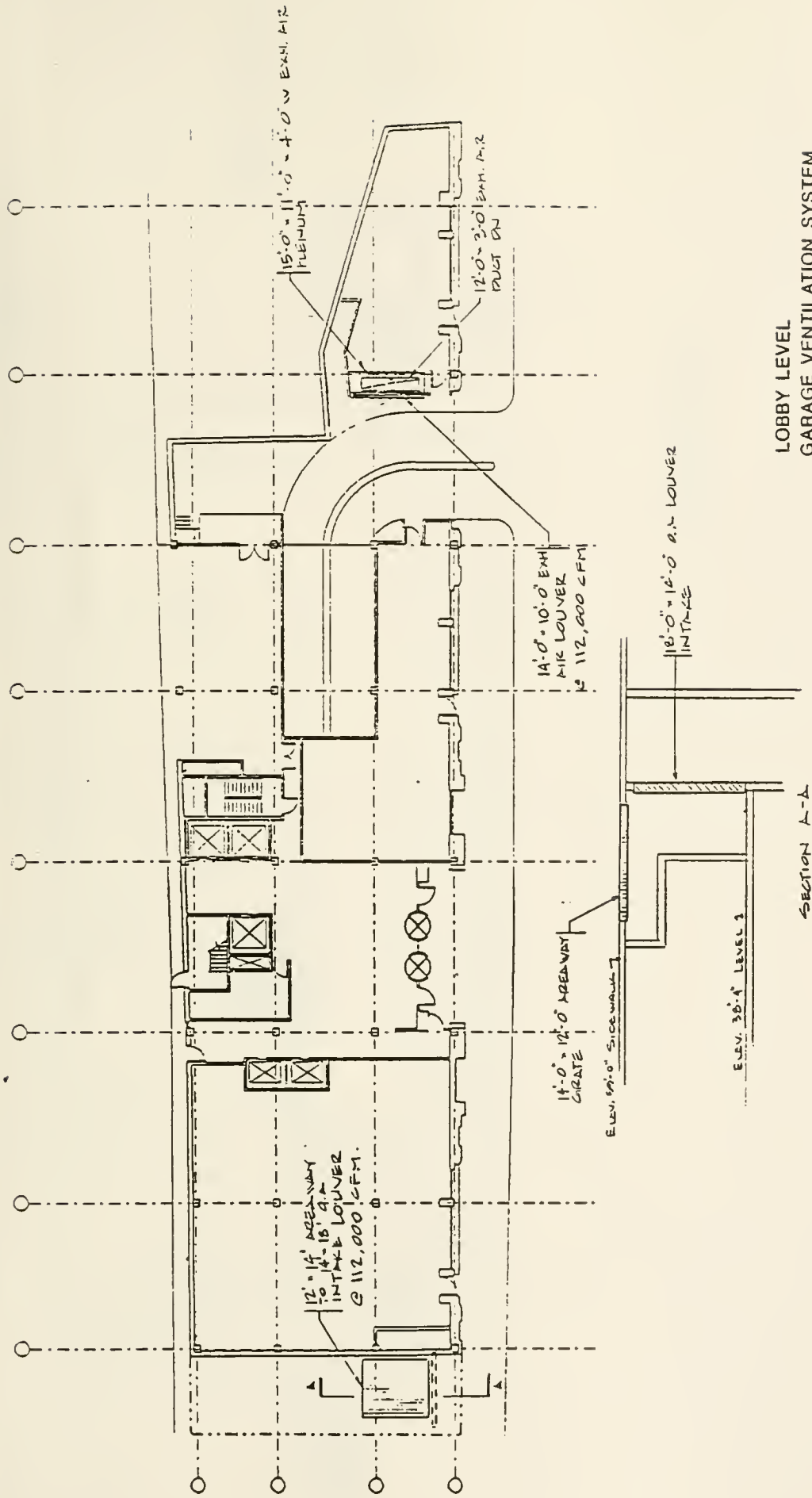
YEAR: 1991 I/M PROGRAM: YES AMBIENT TEMP: 30.0 (F) REGION: LOW
 ANTI-TAM. PROGRAM: NO OPERATING MODE: 50.0 / 10.0 / 50.0 ALTITUDE: 500. FT.

TYPE:	LDGV	LDGT1	LDGT2	LDGT	HOGV	LDDV	LDDT	HDDV	MC	ALL VEH
FEEDS:	10.0	10.0	10.0		10.0	10.0	10.0	10.0	10.0	
WT MIX:	0.637	0.116	0.089		0.035	0.051	0.025	0.040	0.007	
WHITE EMISSION FACTORS (GM/MILE)										
WT CO:	70.73	107.97	110.53	109.08	181.02	2.77	3.19	22.20	106.53	75.65

APPLIED VEH REGISTRATION DISTRIBUTIONS.

YEAR: 1991 I/M PROGRAM: YES AMBIENT TEMP: 30.0 (F) REGION: LOW
 ANTI-TAM. PROGRAM: NO OPERATING MODE: 20.6 / 27.3 / 20.6 ALTITUDE: 500. FT.

TYPE:	LDGV	LDGT1	LDGT2	LDGT	HOGV	LDDV	LDDT	HDDV	MC	ALL VEH
FEEDS:	10.0	10.0	10.0		10.0	10.0	10.0	10.0	10.0	
WT MIX:	0.637	0.116	0.089		0.035	0.051	0.025	0.040	0.007	
WHITE EMISSION FACTORS (GM/MILE)										
WT CO:	42.42	65.75	67.77	66.62	181.02	2.40	2.79	22.20	64.68	48.59



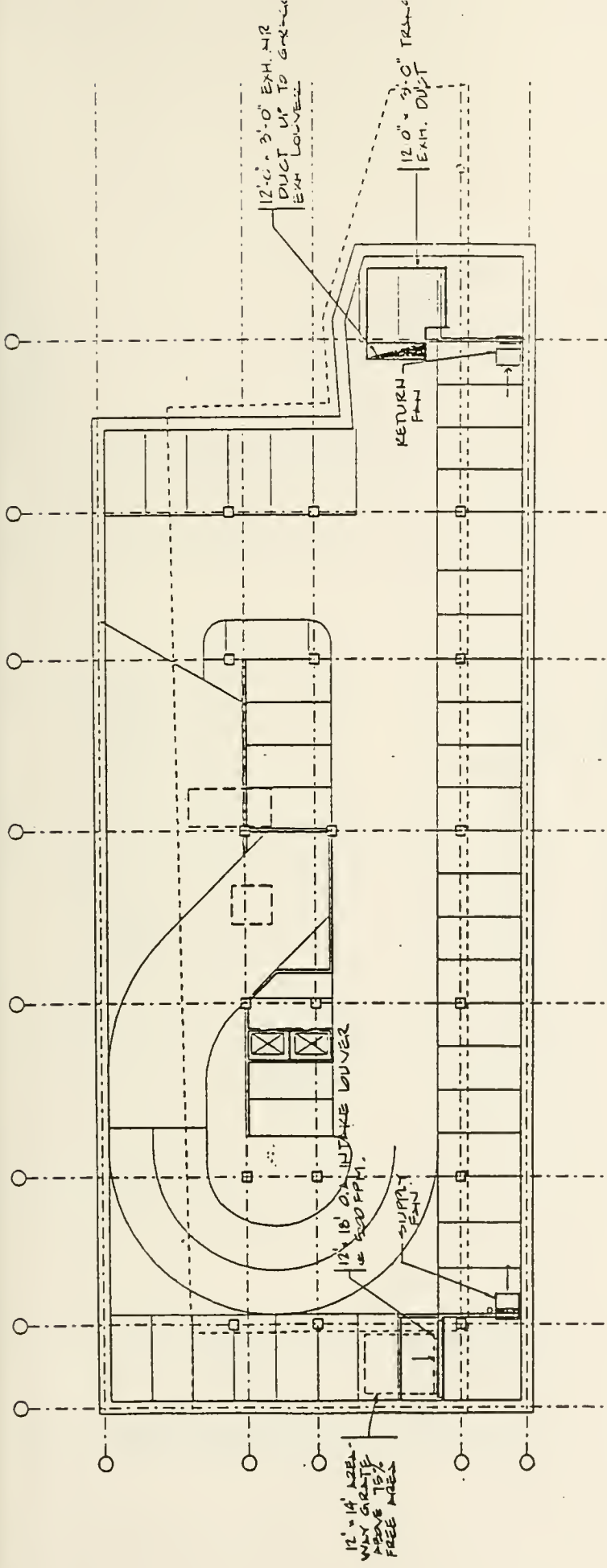
LOBBY LEVEL
GARAGE VENTILATION SYSTEM

Bruner/Cott

The Abbey Group

45 Province Street
Boston, Massachusetts

301 Mutual Street
Cambridge, Massachusetts 02139
617 871 8445
Architects/Interior Design
Preservation/Space Planning



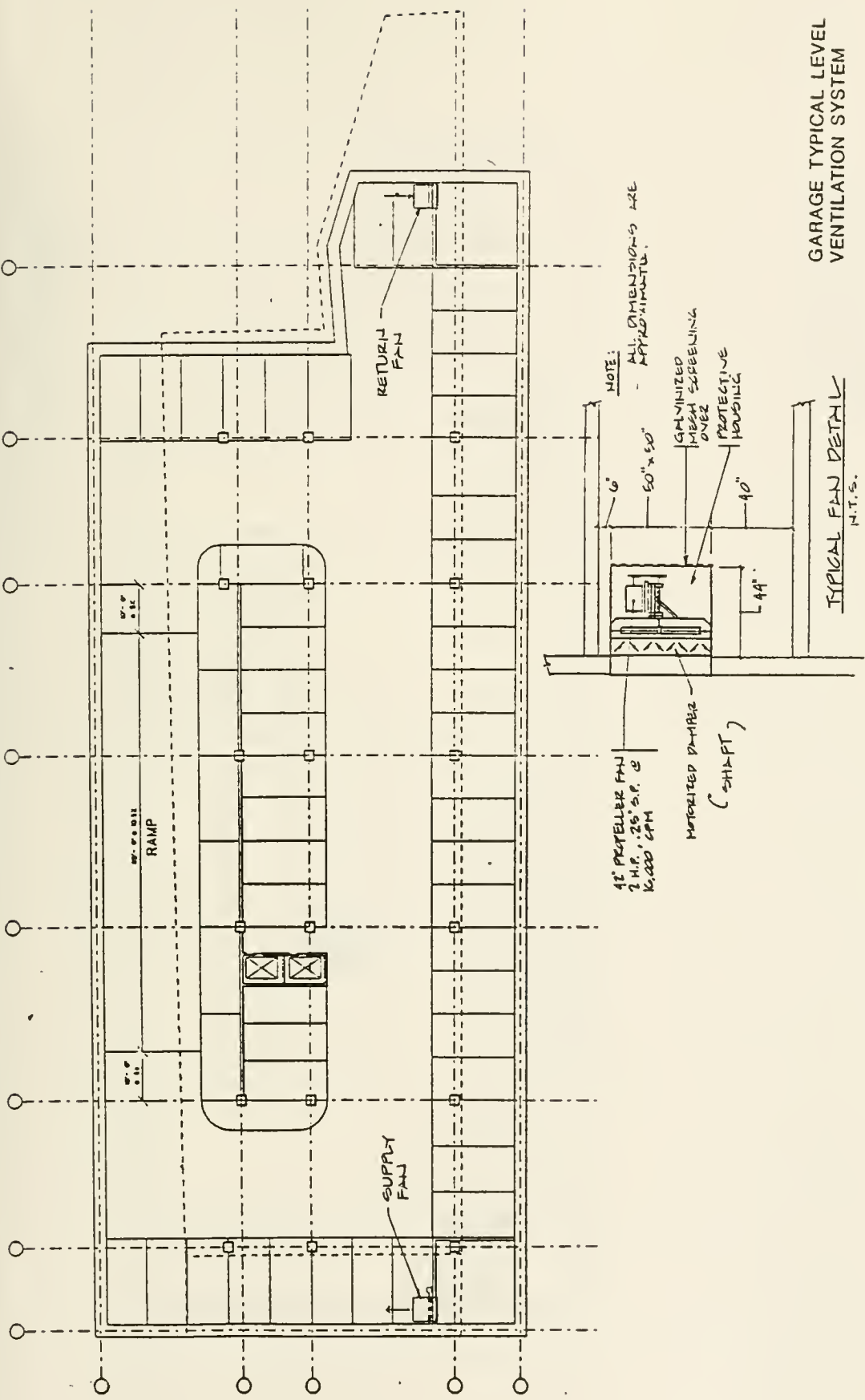
GARAGE ENTRY LEVEL
VENTILATION SYSTEM

Bruner/Cott

The Abbey Group
45 Province Street
Boston, Massachusetts

201 Visual Street
Cambridge, Massachusetts 02139
617 492 6600
Architecture/Urban Design
Preservation/Space Planning

October 1988

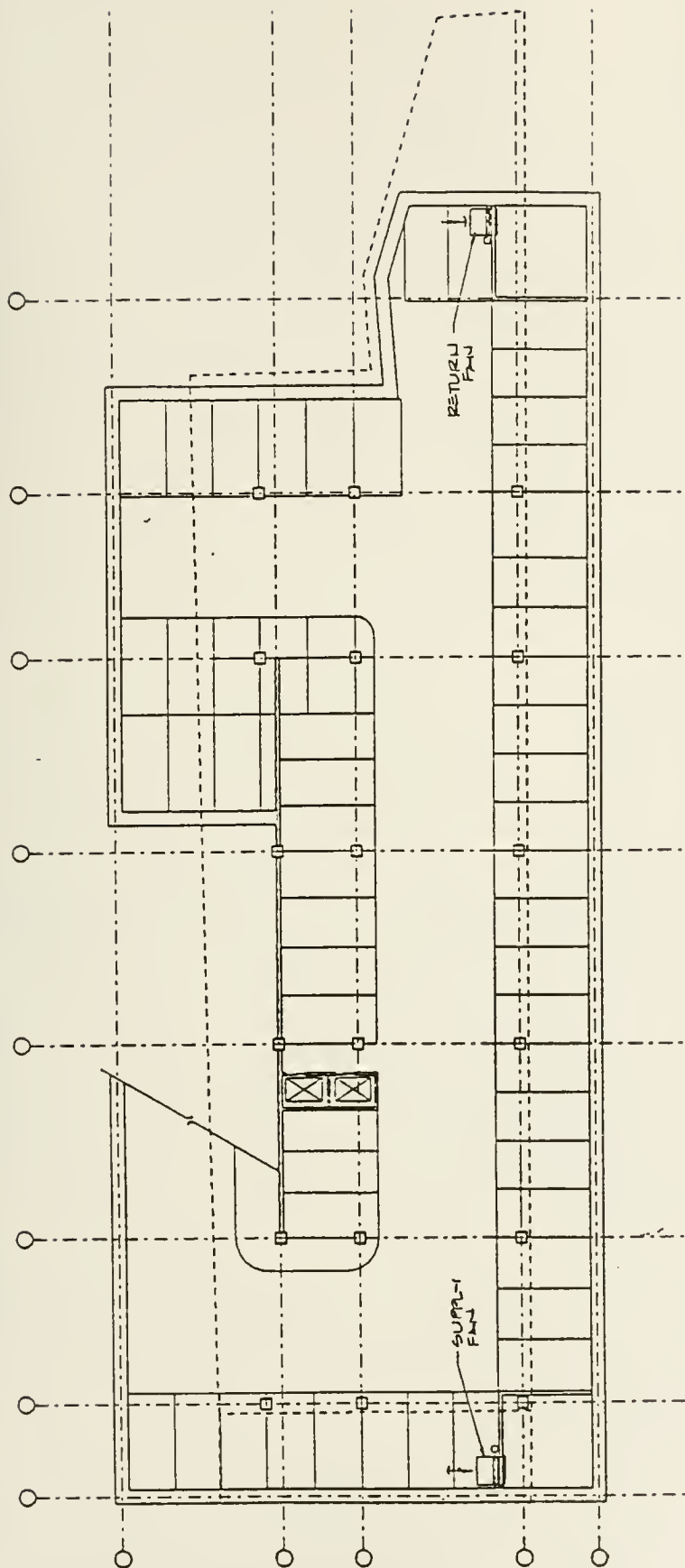


GARAGE TYPICAL LEVEL
VENTILATION SYSTEM

Bruner/Coit

The Abbey Group
45 Province Street
Boston, Massachusetts

301 Mount Street
Cambridge, Massachusetts 02139
617 492 1000
Architectural/Interior Design
Preservation/Space Planning



GARAGE LOWEST LEVEL VENTILATION SYSTEM

Bruner/Cott

301 Union Street
Cambridge, Massachusetts 02119
617 492 8400

Architectural/Interior Design
Programs/Space Planning

The Abbey Group

45 Province Street
Boston, Massachusetts



Geotechnical Engineers

May 5, 1989

The Abbey Group
575 Boylston Street
Boston, MA 02116

Attention: Mr. David Epstein

Reference: 45 Province Street; Final Project Impact Report
Environmental Protection Component; Geotechnical Impact

Gentlemen:

The following is intended to satisfy the submission requirements of the referenced section for the Final Project Impact Report (FPIR) and is in direct response to the comments on geotechnical impact presented in the Preliminary Project Impact Report:

III Environmental Protection Component

4. Geotechnical Impact

1. The total amount of soil material from the approximately 75-foot deep excavation for off-site disposal is about 73,000 cubic yards. The upper 15 feet or so of material which consists primarily of fill, demolition debris and the foundations of previously demolished structures, would be removed by conventional hydraulic backhoe earth excavating equipment supplemented with a hoe-ram, as required to facilitate below-grade demolition. The lower 55 feet or so of excavation would be performed within the confines of the perimeter slurry wall utilizing methods and procedures consistent with "up-down" construction techniques. Specifically, utilizing front-end loaders and bulldozers operating below the previously constructed below-grade parking slabs, soil material would be "mined" and transported to one or possibly two temporary excavation shafts where a crane with a cable-operated clamshell would hoist the excavated material and load it into trucks at ground surface for off-site disposal.
2. Protection of the structural integrity of adjacent building structures and properties is the paramount consideration dictating "up-down" construction with a structural slurry wall since this method provides the most positive protection. More specifically, a structural slurry wall is the most rigid type of earth support wall and the bracing of the wall, which is by means of diaphragm action of the garage slabs as they are sequentially installed with increasing



Geotechnical Engineers

The Abbey Group
October 28, 1988
Page 2

excavation depths, is the most rigid bracing system. The combination of the most rigid earth support wall and the most rigid bracing system results in the most positive protection of surrounding buildings, streets and utilities against potential adverse impacts associated with the deep foundation construction. Further, there will be an extensive performance monitoring program with highly sensitive equipment to detect early ground movements and settlements thereby allowing modifications, if necessary, in the excavation and/or bracing methods and procedures in the interest of positive protection of surrounding properties.

We trust that the above is sufficient for purposes of the FPIR submission. Should additional information be required, please call us.

Very truly yours,

McPHAIL ASSOCIATES, INC.

Robert E. McPhail, P.E.

2071

REM/jmg



Geotechnical Engineers

October 28, 1988

The Abbey Group
575 Boylston Street
Boston, MA 02116

Attention: Mr. David Epstein

Reference: 45 Province Street; Draft Project Impact Report
Environmental Protection Component; Geotechnical Impact

Gentlemen:

The following is intended to satisfy the submission requirements of the referenced section for the Draft Project Impact Report:

III Environmental Protection Component

4. Geotechnical Impact

The preliminary subsurface investigation for the proposed 12-story office/retail building with a 7-level below grade parking structure revealed generally quite competent subsurface conditions relative both to foundation support of the proposed structure and to protecting surrounding buildings, streets and utilities against potential adverse impacts of ground movement, settlement, and groundwater lowering associated with the very deep foundation construction.

Generalized subsurface conditions consist of 10 to 15 feet of miscellaneous granular fill associated with infilled basements of previously demolished buildings below which are very dense interfingering glacial till and glacio-marine deposits to depths of at least 80 feet. These strata are relatively impermeable with the possible exception of limited sand zones. Underlying the basal till is argillitic bedrock. Groundwater is at depths of about 35 to 40 feet.

The proposed 70 to 80 foot deep excavation in close proximity to surrounding buildings up to 14 stories in height dictates slurry wall construction which provides the most positive protection against undue ground movements and settlements. The slurry wall serves the temporary function of earth support and underpinning, and then subsequently becomes the permanent foundation wall around the entire below grade structure. Further, slurry wall construction provides the most positive groundwater cutoff, both for temporary construction purposes and for the permanent pressure relieved slab on grade,



Geotechnical Engineers

The Abbey Group
October 28, 1988
Page 2

by sealing into the impervious basal till and thereby isolating pervious zones in the overlying glacio-marine deposits.

Bracing of the slurry wall for the proposed "up-down" construction would be provided by diaphragm action of the garage slabs as they are sequentially installed with increasing excavation depths.

We trust that the above is sufficient for purposes of the DPIR submission. Should additional information be required, please call us.

Very truly yours,

McPHAIL ASSOCIATES, INC.

A handwritten signature in dark ink, appearing to read "Robert E. McPhail".

Robert E. McPhail, P.E.
2071

REM/jmg

L.G. COPLEY ASSOCIATES

Acoustics & Vibration

P.O. BOX 175

• WEST NEWTON, MASSACHUSETTS 02165

• 617 965-5370

November 2, 1988

TO: The Abbey Group
575 Boylston Street
Boston, MA 02116

ATTENTION: David Epstein

FROM: Lawrence G. Copley

SUBJECT: Proposed 45 Province Street Office Building
Noise Emissions Design Criteria

As requested, we have reviewed the design of the proposed 45 Province Street Office Building, in order to determine what noise emissions design criteria will be needed to comply with the City of Boston Regulations for the Control of Noise. As required by the BRA (Paragraph 5. - Noise), we have paid special attention to the Parker House Hotel, which is separated from the 45 Province Street site by only a narrow way - Chapman Place.

The purpose of this memo is to describe our recommended Noise Emissions Design Criteria, and the basis for these recommendations.

A. EXISTING CONDITIONS & APPLICABLE NOISE REGULATIONS

A.1 Existing Land Uses & Noise Levels

The neighboring uses are all commercial. The most sensitive adjacent use is the hotel (Parker House) just across Chapman Place. The facade of the hotel is only 20 feet from the proposed office building.

We measured the existing background noise levels at the site on Monday, October 24, 1988, 3:30-4:00 pm. The background noise level was 68 dBA at the roof of the parking garage (8th Floor), facing Chapman Place. The main source of noise was an exhaust

fan at the back of the hotel. At street level, in Chapman Place, the noise from this exhaust fan was even louder: 75 dBA at the corner of the parking garage, about 25' from the fan.

In an effort to ascertain the background noise levels in the absence of the exhaust fan, we measured at the Province Street side of the roof of the parking garage. Here the background noise level was 63 dBA, produced mainly by traffic in nearby streets. We also measured at street level at the opposite end of the garage: at the end of Bosworth Street. (This location was shielded from the exhaust fan by the garage structure.) The background noise level here was 63 dBA, the same as at the roof of the garage facing Province Street.

Based on these noise level measurements, we are of the opinion that the background ambient noise level in this part of the city is approximately 63 dBA in the daytime on a typical weekday. At the back of the hotel, where noise from the exhaust fan contributes significantly, the noise level ranges from 68 dBA to as high as 75 dBA within 25 feet of the fan. There are many windows at the back of the hotel, which appear to be guest-room windows, and which are exposed to noise levels of 68 dBA or louder.

A.2 Applicable Noise Regulations

There are two applicable noise regulations:

1. Regulations for the Control of Noise in the City of Boston
2. Mass. DEQE Guidelines for Submittal of Noise Controls (promulgated under 310 CMR 7.10 - Noise)

The Mass. DEQE Guidelines prohibit noise emissions that would increase the noise by more than 10 dBA above the pre-existing background ambient noise level. Since the existing daytime ambient noise level is 63 dBA, the DEQE would allow up to 73 dBA in the daytime for any new noise source emission. (Quieter noise emission limits would apply at night, due to the quieter ambient noise levels that presumably occur then).

The City of Boston noise regulations are more stringent, for this site, than the DEQE limit. Table 1 summarizes the Boston noise limits. We understand that the City views the Parker House Hotel as "residential". Therefore, the Parker House qualifies for the 60 dBA limit in "Daytime" and 50 dBA at "all other times", i.e. 6pm-7am daily, except all day on Sundays.

TABLE 1: MAXIMUM ALLOWABLE NOISE EMISSIONS FROM
NO. 45 PROVINCE STREET OFFICE BUILDING
(Under the City of Boston Regulations
for the Control of Noise).

	RESIDENTIAL ZONE	BUSINESS ZONE
DAYTIME (7am-6pm)	60 dBA	65 dBA
ALL OTHER TIMES (Includes all day Sundays)	50 dBA	65 dBA

* * *

B. RECOMMENDED NOISE EMISSIONS DESIGN CRITERIA

Based on our review of the City of Boston Regulations for the Control of Noise, we recommend that all mechanical (HVAC) systems should be designed and specified such that their noise emissions not exceed the limits set forth in Table 1. The specific receptors to be addressed are:

1. Parker House Hotel - At the facade of the hotel, at any elevation above ground; noise emissions must comply with Residential Zone limits in Table 1.
2. All other neighboring uses - At the property lines of all other neighboring properties, at any elevation above ground; noise emissions must not exceed 65 dBA. (See Table 1.)

Emergency/Standby Diesel-Generator

There is a 750 kW diesel-generator proposed for the building. This is intended for emergency/standby operation only, in the event of a power outage. In addition there will be a periodic 30-minute exercise test, which would be scheduled for "daytime", between 7am-6pm on a weekday.

Based on the very infrequent operation of the diesel generator, we recommend that an exception to the Regulations should be sought. Specifically, we recommend that the generator be permitted to exceed the standard limits by 10 dBA, i.e. 70 dBA at the hotel, and 75 dBA at neighboring commercial uses. (We note that the present noise exposure at the back of the hotel is 75 dBA or louder at locations within 25 feet of the exhaust fan, which operates continuously).

C. LISTING OF EQUIPMENT WITH POTENTIAL FOR NOISE EMISSIONS

We have reviewed the design of the proposed office building, and consulted with the Architect and the Mechanical Engineer to obtain an appreciation for the types of equipment that may result in noise emissions. In the following we discuss each category of equipment in turn, and outline the approach recommended for complying with the Noise Emissions Design Criteria.

1. Garage Ventilation System

This system will utilize exhaust fans with total air volume capacity of the order of 125,000 CFM. We recommend that the exhaust fans should be located near the Province Street side of the building, and provided with acoustical treatment on both the inlet and discharge sides of the fans.

2. Emergency/Standby Diesel-Generator (750kW)

We recommend that this unit should preferably be located at the roof level or, alternatively, below ground. In either case it should be located on the Province Street side of the building, to minimize noise control requirements. The engine exhaust will require a critical grade silencer. The engine ventilation system will require acoustical treatment at the inlet and discharge.

3. Cooling Tower(s)

The cooling tower(s) will be located on the roof. We recommend that they should be positioned near the middle, or towards the Province Street side of the building, to minimize noise control requirements.

Generally the cooling load for an office building is less at night or on weekends. Maximum cooling loads tend to occur during the afternoon, when the building is occupied. At night, and on weekends, it is generally feasible to cool the building with the cooling tower fans either off, or running at reduced speed. Thus it is generally feasible to reduce noise emissions at night, or on weekends, by installing variable speed or two-speed motor drives on the cooling tower fans.

We recommend variable speed or two-speed motor drives on the cooling tower fans as the most energy-efficient means of controlling noise emissions. Other methods that may be appropriate include: selecting an over-sized tower and running it at reduced speed; or providing acoustical treatment at the air inlet and discharge openings.

4. Air-Handling Units

All of the air-handling units for the building HVAC systems will be located on the roof. Depending on their exact position and orientation, the fresh-air intake and exhaust openings may require acoustical treatment to reduce noise emissions.

5. Miscellaneous Exhaust Fans

All of the miscellaneous exhaust fans will be located on the roof. These fans are relatively small in height and in motor size. Also, there will not be any directly adjacent buildings that are higher than the proposed office building. Considering all these factors, it will probably be feasible to control the noise emissions from these fans by positioning them so that the parapet provides line-of-sight shielding to the neighboring buildings.

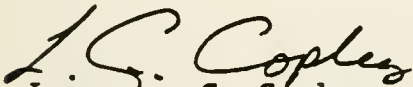
* * *

The above descriptions of noise control methods are necessarily somewhat generalized at this time. As the design of the mechanical systems is developed in more detail, it will be possible to analyze their noise characteristics and develop more specific recommendations for noise control.

We shall be pleased to provide any additional information you may require.

Please call with any questions.

L.G. COPLEY ASSOCIATES


Lawrence G. Copley
Senior Consultant

LGC/bgm

L.G. COPLEY ASSOCIATES

Acoustics & Vibration

P.O. BOX 175

• WEST NEWTON, MASSACHUSETTS 02165

• 617 965-5370

May 4, 1989

The Abbey Group
575 Boylston Street
Boston, MA 02116

ATTENTION: Mr. David Epstein

SUBJECT: No. 45 Province Street
Mechanical Equipment Noise Emissions

Dear David:

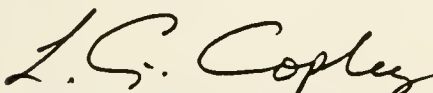
We have reviewed the BRA's evaluation of the Draft Project Impact Report, Section E.-Noise, in which they request more details of the noise control features that will be incorporated in the Mechanical Systems.

As discussed, we are not yet in a position to provide any further details. Once your Mechanical Consultant has developed the HVAC design to the stage of a one-line riser diagram, and a schedule of major equipment selections and locations, we shall proceed with our analysis and develop noise control recommendations. We shall perform this work in close consultation with your Architect and your Mechanical Consultant.

We would also like to confirm that it is our understanding that you wish us to develop noise control recommendations such that noise emissions from the mechanical systems will comply with the City of Boston noise regulations, with the Parker House Hotel treated as a residential use.

Sincerely yours,

L.G. COPLEY ASSOCIATES


Lawrence G. Copley
Senior Consultant

LGC/bgm

SHOOSHANIAN
ENGINEERING
ASSOCIATES
INCORPORATED

330
CONGRESS STREET
BOSTON
MASSACHUSETTS
02210-1216
TEL 617 426 0110
FAX 617 426 7358

2 May 1989

Bruner/Cott & Associates, Inc.
301 Vassar Street
Cambridge, MA 02139

ATTN: Lynne Brooks

RE: 45 Province Street
Noise Regulation Compliance

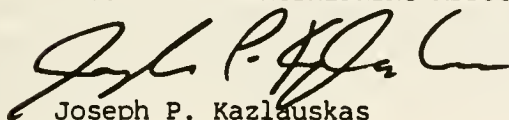
Dear Lynne:

It is our intent to comply with the Mass. DEQE Guidelines and the City of Boston Noise Regulations which ever is more stringent for the control of noise emissions for the above referenced project. Acoustical treatment shall be provided on all equipment as defined by the Acoustical Consultant to meet or be less than the maximum allowable noise emissions permitted.

Please feel free to call if there are any questions or comments regarding the above issue.

Very truly yours,

SHOOSHANIAN ENGINEERING ASSOCIATES, INC.



Joseph P. Kazlauskas
HVAC Engineer

JPK/llw

cc: Office File

L.G. COPLEY ASSOCIATES

Acoustics & Vibration

P.O. BOX 175

• WEST NEWTON, MASSACHUSETTS 02165

• 617 965-5370

May 4, 1989

The Abbey Group
575 Boylston Street
Boston, MA 02116

ATTENTION: David Epstein

SUBJECT: No. 45 Province Street
Construction Noise
Analysis & Evaluation

Dear David:

As requested, we have analysed noise emissions during construction of No. 45 Province Street, and their likely effect on the neighboring community. The purpose of this letter is to present the results of our analysis and evaluation of construction noise. Our goal is to assist you in identifying any potential problems from construction noise so that you can take appropriate action to minimize any possible disruption.

ANALYSIS

In performing the construction noise analysis we have referred to the Draft Project Impact Report for descriptions of the project and the likely construction procedures. We have also had several discussions with Turner Construction Co. staff to clarify certain details of the construction sequence.

Receptors

The closest noise-sensitive receptor is the Parker House Hotel. Guest room windows face onto the site across Chapman Place, with only 20 feet horizontally between the hotel and the proposed new building.

As noted in the DPIR, existing noise levels at the back of the Parker House, facing Chapman Place, are in the range of 68-75 dBA, resulting from an exhaust fan on the wall of the hotel.

Another noise-sensitive receptor is the Devonshire Tower residential building on Washington Street. This residential tower is approximately 600 feet from the site. Due to the intervening buildings, most of the residential windows are shielded from direct view of the site at ground level, where most of the construction noise originates. However, many of the residences on the upper ten or so floors are estimated to have a direct line of sight to some or all of the site at ground level. These residences will not benefit from the noise reduction resulting from shielding by intervening buildings.

Construction Activity

Demolition of the existing garage will be a critical phase from a noise standpoint, since it will involve impact devices, which tend to generate high noise levels. However, this phase will last only two months, and demolition will occur during daytime only (7am-6pm).

The next critical phase from a noise standpoint will be the excavation and garage sub-structure construction, preceded by construction of the slurry wall. It is proposed to work an extended day (7:00am-5:30pm) during most of this 16-month phase.

The noise during later phases of construction will be generally less critical than the demolition and excavation phases. They are generally somewhat quieter than demolition, and no louder than excavation.

Probably the single most noise-critical activity (other than demolition and excavation) will be erection of the superstructure. Some of this activity will be as close as 20' from guest room windows at the Parker House. However, this noise will be of fairly short duration. The erection of the superstructure is projected to take only three months, and activity in close proximity to any particular guest room will last only a day or two, as the construction progresses. Furthermore, construction activity will occur only during daytime (7am-6pm) when the guest rooms are usually not occupied.

Noise Levels: Excavation Phase

The Excavation Phase is probably the most critical from a noise standpoint, due to the concentration of construction equipment and the extended duration (16 months). The noise analysis has, therefore, addressed this most critical phase.

The excavation/sub-structure phase involves three different activities:

- a. (6 months) - Slurry wall construction around the perimeter to full depth of garage.
- b. (7 months) - Excavation for garage.
- c. (3 months beyond b.) - Construction of garage sub-structure.

It is likely that activities b. and c. will be combined in a "top-down" form of construction. In this approach there is an initial excavation to a depth of about 12'. Then formwork is erected and the ground floor slab poured. All subsequent excavation and construction of the garage is performed under cover of the ground floor slab. There would be "dirt hole" openings at each end of the building for removal of excavate and delivery of steel and concrete for the sub-structure.

In Table 1 we show the likely noise levels reaching sensitive receptors during each of these activities. The two "noise level" columns show the estimated noise levels that would be received at the locations indicated. These would be approximately the LEQ or L10 levels that would be read by an analyzing sound level meter.

TABLE 1
ANALYSIS OF CONSTRUCTION NOISE
EXCAVATION & SUB-STRUCTURE PHASE

ACTIVITY PHASE	PREDICTED NOISE LEVELS AT RECEPTORS		1/*
	PARKER HOUSE	2/* DEVONSHIRE TWR.	
SLURRY WALL	87 dBA	59 dBA	
EXCAVATION			
- OPEN	90 dBA	62 dBA	
- COVERED	70 dBA	42 dBA	
SUB-STRUCTURE			
- OPEN	86 dBA	58 dBA	
- COVERED	66 dBA	38 dBA	

* Notes:

- 1/ Predicted noise levels at receptors are estimated LEQ or L10.
- 2/ Predicted noise levels outside guest windows; existing noise levels are 68-75 dBA due to hotel exhaust fan.

EVALUATION

Under the City of Boston Regulations for the Control of Noise, the noise from construction is not permitted to exceed 75 dBA (L10). Table 1 indicates that the projected noise levels comply with this regulation at Devonshire Tower. In fact they are considerably quieter than permitted. We are of the opinion that residents of Devonshire Tower will hardly be able to hear construction activity from No. 45 Province Street, considering the multitude of other sources of urban sound.

At the Parker House, construction noise levels are projected to exceed the permitted 75 dBA by a significant margin, except during the covered mode of operation, which is projected to comply with the regulation. The slurry wall construction and open excavation and sub-structure construction are expected to last more than 7 months, and possibly as long as 16 months if "top-down" construction is not utilized.

The highest projected noise levels at the Parker House are approximately 90 dBA (LEQ or L10), at the exterior of guest room windows. However, this noise would occur only during daytime (7am-6pm) when the guest rooms are generally not occupied. The present guest windows appear to be single-glazed double-hung wood sash windows. The typical noise reduction through this type of window is 25 dBA, so that the projected interior noise level is 65 dBA under the worst case - open excavation activity. A sound level of 65 dBA is comparable to that of a conversational voice, so that this noise would not interfere with normal daytime activities, such as housekeeping.

* * *

Based on our analysis, we do not anticipate any adverse reaction from the residents of Devonshire Tower due to construction noise at No. 45 Province Street. However, the Parker House could occasionally experience some disruption due to construction noise entering through windows facing Chapman Place.

* * *

NOISE MITIGATION OPTIONS - PARKER HOUSE

Your choice of slurry wall construction for the garage excavation, thus eliminating sheet piling, greatly reduces the likelihood of any adverse noise effects for the Parker House. Also, as indicated in Table 1, the "top-down" form of construction for the sub-structure offers great advantages of noise reduction. This method of construction (if feasible) is strongly recommended for noise control purposes.

Other noise mitigation measures you may wish to consider include the following:

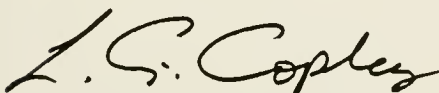
1. In the Specifications for all contracts and sub-contracts, include noise control requirements such as:
 - All internal combustion engines to be equipped with exhaust silencers maintained in good condition.
 - The exhaust silencer requirement applies to all engine-powered equipment including, but not limited to: trucks, earthmoving equipment, compressors, concrete floats, etc.
 - Sub-contractors to cooperate fully with the General Contractor, as directed by Job Superintendent, in performing their work in such a way as to minimize any noise disruption of the Parker House.
2. Plan and execute all major construction phases so as to minimize any noise disruption of the Parker House. These noise mitigation efforts could include any of the following:
 - Place major equipment, such as cranes, as far as possible from the Parker House, or shielded from it by the Parker House Office Building.
 - Use electric motor powered equipment wherever possible in place of diesel or gasoline engine units.
 - During demolition, use saw cutting to the maximum extent possible in place of impact devices (jackhammers or pavement breakers).
 - Schedule deliveries of concrete and other materials, and arrivals of spoil trucks, so as to minimize queuing and idling of trucks on site.

We believe that with careful attention to the noise aspects of the construction process it will be possible to build No. 45 Province Street with a minimum of noise disruption to any of the neighbors.

* * *

We shall be pleased to provide whatever further assistance is needed. Please call with any questions.

L.G. COPLEY ASSOCIATES



Lawrence G. Copley
Senior Consultant

Turner

April 27, 1989

45 PROVINCE STREET
BOSTON, MASSACHUSETTS
CONTRACT NO. MJ-66

The Abbey Group
575 Boylston Street
Boston, MA 02116

Attn: Mr. David S. Epstein

Gentlemen:

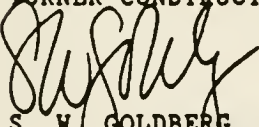
In response to the construction issues raised in the Preliminary Adequacy Determination dated March 30, 1989, be advised as follows:

1. Police Details: Turner will prepare and have approved by the Boston Traffic Department a formal "Traffic Maintenance Plan." This plan will include provisions for police details in quantities and for durations as deemed necessary as mutually agreed to between the Traffic Department and Turner.
2. The "Option B" design moves the east slurry wall farther to the west. The construction schedule's overall impact would be a decrease in duration of approximately two months.

I trust this information is satisfactory.

Sincerely,

TURNER CONSTRUCTION COMPANY


S. W. GOLDBERG
Project Executive

SWG:PMM

cc: Lynne Brooks - Bruner/Cott & Associates, Inc.

ner

45 PROVINCE STREET
BOSTON, MASSACHUSETTS
CONTRACT NO. MJ-66

November 1, 1988

The Abbey Group
575 Boylston Street
Boston, MA 02116

ATTENTION: Mr. David Epstein

Dear Mr. Epstein:

Pursuant to submission Requirement No. III 6, (Construction Impacts) of the Draft Project Impact Report included in the Boston Redevelopment Authority Scoping Determination for the proposed 45 Province Street Project, we wish to advise as follows:

A. Construction Schedule and hours of construction activity:

Start demolition	-	10/89
Complete demolition	-	12/89
Start construction	-	1/90
Complete foundation & substructure	-	5/91
Complete superstructure	-	8/91
Complete sitework	-	9/91
Complete construction	-	9/91

Hours of construction activity will generally be from 7:00am to 4:00pm on week-days except for second shift work during excavation, from Jan. 1990 to Feb. 1991, when that work will proceed from 7:00am to 12:00am on week days.

B. Potential dust and pollutant emissions:

Contractor(s) will comply with ordinances and regulations of the City of Boston and of the Commonwealth of Massachusetts and of the U.S. Government. Specifically, the potential for dust generation will be greatest during demolition and rubbish removal. This potential will be controlled by constant wetting during the demolition operation and covering of loads. Rubbish chutes and containers will also be shrouded and/or covered.

C. Potential noise impact and mitigation measures.

Contractor(s) will comply with all City of Boston, Massachusetts and Federal laws, ordinances and regulations. It should be noted that the "down" method of construction presently planned, will considerably reduce the potential for noise during the substructure phase of construction.

D. Mode of arrival for construction workers.

Many construction workers will use public transportation; tool lock-ups will be provided onsite to facilitate such use. Others will car-pool or otherwise use private means of transportation and will probably park within six (6) blocks of the site.

E. Frequency, times and routes of truck movement during construction

1. Frequency and times: Major items being delivered to the site will be ready-mixed concrete: up to 50 truckloads per day from 1/90 to 6/91; structural steel and metal deck from 9/90 to 5/91 at a peak rate of 8 to 10 trailer-truck loads per day; stone, brick and window materials: from 12/90 to 8/91 at a rate of about six truckloads per day; and interior partitions, mechanical, electrical and elevator material at a peak rate of about four loads per day from 12/90 to 9/91.

2. It is anticipated that entering traffic will approach the site from the east via Franklin and Bromfield Streets, thence north on Province Street. Departing truck traffic will move north bound on Province St., east on School St. and north on Washington St. with some vehicles turning east on Water St. from Washington St.

F. Temporary storage of Construction Equipment.

To the extent possible, materials and equipment will be brought to the site and put in place. Some storage will probably be necessary at warehouses or staging areas outside the City. Some storage will be required within the site fence along Province Street and Chapman Place.

G. Need for full or partial street closure.

It is not expected that any full closure of public streets will be required for construction. If, and to the extent that a temporary street closure is required it would be done during "off-hours" and as directed by the City of Boston Traffic Commission.

Partial closure at Province Street will be required from October 1989 to September 1991 according to the plan submitted elsewhere in this report. During this time delivery and loading access to all existing businesses along Bromfield, Bosworth, School and Province Streets and Chapman Place will be maintained.

Very truly yours,

TURNER CONSTRUCTION COMPANY



J. E. Rich
Vice President and Operations Manager

JER:kfw

cc: Bruner/Cott - S. Bruner
TCCo - TGM, JJK

September 23, 1988

45 Province Street
Preconstruction Schedule

DOCUMENT DEVELOPMENT
REVISED 10/7/88 by BCA

	MONTH	JUL	AUG	SEP	OCT	NOV	1988		1989		JUN	JUL	AUG	SEP
							DEC	JAN	FEB	MAR				
DOCUMENT DEVELOPMENT														
A. Schematic Design														
B.														
C. Design Development Documents														
D. Value Eng/GMP Documents														
E. Construction Documents														
BUDGETING														
A. Garage Estimate-Typical														
B. Schematic Estimate														
C. Value Engin-Interim Budgeting														
D. Design Development Budget														
E. GMP														
PERMITS/APPROVALS														
A. BRA Approval														
B. Zoning														
C. Public Works/Traffic Plan														
D. Project Impact Report														
E. Building Dept:														
1. Variances														
2. Building Permit														
3. Fire Dept														
4. Arch Barrier Board														
5. Curb Cut Permit														
6. Street Rental														
7. Overtime Permit														
F. Sewer Tie-Ins														
G.														
H.														
I.														
NOTICES														
A. 20 Day Pre-demolition														
B. 20 Day Pre-construction (DEQE)														
C. 24 Hour Pre-construction (ISD)														
START CONSTRUCTION														

Coordination

Rodent Control

The developer will comply in all ways with the requirements of the Inspectional Services Department's regulations for rodent extermination.

Prior to the start of construction and prior to the commencement of demolition the developer will contract with a licensed exterminator. With the building application, the exterminator will file a certificate of rodent extermination indicating that extermination work will be carried out before, during and at the completion of construction. Any property within three hundred feet of the development that is impacted, with the approval of the building owner, will be baited along its exterior.

The licensed exterminator will indicate both before and during construction that no rodent activity is identified. Compliance with the Rodent Extermination Requirements will be monitored by the Rodent Control Unit of the Inspectional Services Department.

1
DEPARTMENTAL POLICY STATEMENT
NUMBER _____
DATE _____

SUBJECT: RODENT EXTERMINATION REQUIREMENTS FOR
BUILDING DEPARTMENT PERMIT APPLICATIONS

1. Effective August 1, 1986, applicants for BD 1, BD 1A, BD 2, BD 2A and BD 3 type forms will be required to exterminate for rodents in accordance with the attached statement.

Alterations which require major construction or structure work including demolition, excavation, foundation and basement rehabilitation work will require rodent extermination. This will include interior renovation, interior demolition except when such work is limited to the cutting away of any wall or portion thereof, the removal or cutting of any structural beam or bearing support, the removal or change of any required means of egress, or rearrangements of parts of a structure affecting the exitway requirements.

No rodent extermination is required for ordinary repairs or cosmetic work.

2. This statement provides rodent extermination requirements, exemptions, penalties and monitoring.
3. Compliance with this policy will be monitored by the Inspectional Services Rodent Control Program.

I. INTRODUCTORY STATEMENT

In accordance with the State Sanitary Code, Chapter II, 105 CMR 410.550 and pursuant to the authority granted to the Commissioner under this regulation, it is hereinafter established that extermination for rodents be required for applicants of permits for demolition, excavations, foundation and basement rehabilitation. The purpose of this policy is to reduce or eliminate rodent infestation.

II. REQUIREMENTS

Applicants for BD 1, BD 1A (except for work within existing foundations), BD 2, BD 2A and BD 3 (Including exploratory demolition and nonstructural work such as demolition to grade or for rehabilitation of interior structure) must file a certificate of rodent extermination from a licensed exterminator with the application indicating that extermination will be carried out before, during and at completion of such work.

With the approval of the owners, any premises impacted upon within three hundred (300) feet of such work shall be exterminated. Only the premise exterior need be baited.

III. Exemptions

One and two family structures are exempt from this requirement except when the structure is gutted or demolished. All other exemptions shall be determined on a case-by-case basis and require the recommendation of the Director of the Rodent Control Program and the written approval of the Commissioner of Inspectional Services Department or his assignee.

IV. MONITORING

Licensed exterminators shall indicate by first and second inspections (before and during construction activity, respectively) that no rodent activity is identified.

Monitoring shall be done by Inspectional Services Department Rodent Control Program Health Inspectors. Random inspections shall take place and other monitoring will be as a result of rodent activity complaints where construction work of any kind is being undertaken.

V. NONCOMPLIANCE PENALTIES

No Certificate of Occupancy will be issued where noncompliance with this policy is identified.

Urban Design

The following Program and Design Criteria were applied during the design process.

PROGRAM and DESIGN ELEMENTS

1. Pedestrian Access: Provide a rich and dynamic street level experience. Provide through access through the building lobby from Province Street to Chapman Place. Reinforce the links between Province and Tremont Street and Province and Washington Street. Participation in the "Design Study for Physical Improvements for the Downtown Crossing area" which is being sponsored by the Downtown Crossing Association, and City of Boston Public Works Department. Develop cohesive design which employs street lighting, signage, sidewalk paving materials, landscape materials, park seating and plantings.
2. Cornice details, and building heights and their interrelationships with neighboring buildings.
3. Public open space and streetscape improvements. Creation of the "Province House Park." Park will feature a plaque or other appropriate monument which recollects the historic importance of the Province House Steps and the Royal Governor's Mansion.
4. Dynamic Ground level activity along both Province Street and Bosworth Street. Multiple retail opportunities. Full service restaurant which will enliven the area into the evening hours.
5. The site and surrounding architecture dictate the direction of design and materials employed in that design. The narrowness of the site prevent the use of building setbacks. A vertical "tower" is projected slightly forward on the Province Street elevation, marking the entry, breaking the buildings horizontality, and giving it a center of focus. This element is located at the crowning of the street, making a decisive connection to the topography of the site.
6. The facade employs the traditional Boston materials of red brick and limestone. The base of the building is a two-story arcade to provide visual richness and a sense of "place" at the storefronts, entry, etc. The windows for the office space are set into a masonry opening to enhance the individuality of each opening and to differentiate the plane of the window and the plane of the curtain wall. The windows are paired, grouped, and gathered to a central "tower" of the facade to create an implied focus of activity within the building. The windows are ranged at the top floor with deep shadow lines and limestone trim to create a cornice against the sky.
7. Massing conforms to the adjacent buildings. The building height and setback lines conform to the street wall height which has already been established by the existing Parker House and Parker House Office Building.
8. The character of the materials and details are consistent with the historic buildings in the area.
9. The project fits into the fabric of its environment by continuing the street wall lines along the three streets on which the building fronts, Chapman Place, Bosworth Street, and Province Street. The project reinforces old pedestrian thoroughfares by lighting, resurfacing the sidewalks and providing building entry points on each of these streets.
10. The Province House Steps will not only be restored, they will become an integral part of a small urban park which will recollect the historic importance of this site in the early history of Boston.

Project Information: Dimensions

BASE BUILDING F.A.R. SQUARE FOOTAGE

<u>FLOOR</u>	<u>F.A.R. GROSS SF</u>	<u>OFFICE</u>	<u>RETAIL</u>	<u>DAY CARE</u>
LOBBY	9,779	3,307	6,472	
MEZZ	9,382	0	5,382	4,000
2	11,195	11,195		
3	12,228	12,228		
4	12,228	12,228		
5	12,228	12,228		
6	12,228	12,228		
7	12,228	12,228		
8	12,228	12,228		
9	12,228	12,228		
10	12,228	12,228		
11	12,228	12,228		
12	12,228	12,228		
PH	11,507	11,507		
TOTAL	164,143	148,289	11,854	4,000

GARAGE SQUARE FOOTAGE

<u>LEVEL</u>	<u>GROSS S.F.</u>	<u># OF CARS</u>	<u>S.F./CAR</u>
P-1	19,700	44	448
P-2	19,700	56	352
P-3	19,700	56	352
P-4	19,700	56	352
P-5	19,700	76	259
P-6	19,700	76	259
P-7	17,575	76	231
RAMP	4,000		
MECH	3,000		
TOTAL	142,775	440	324









Marliave
Restaurant
COCKTAILS

The
Littlest
Bar
47

The
LITTLEST
BAR



















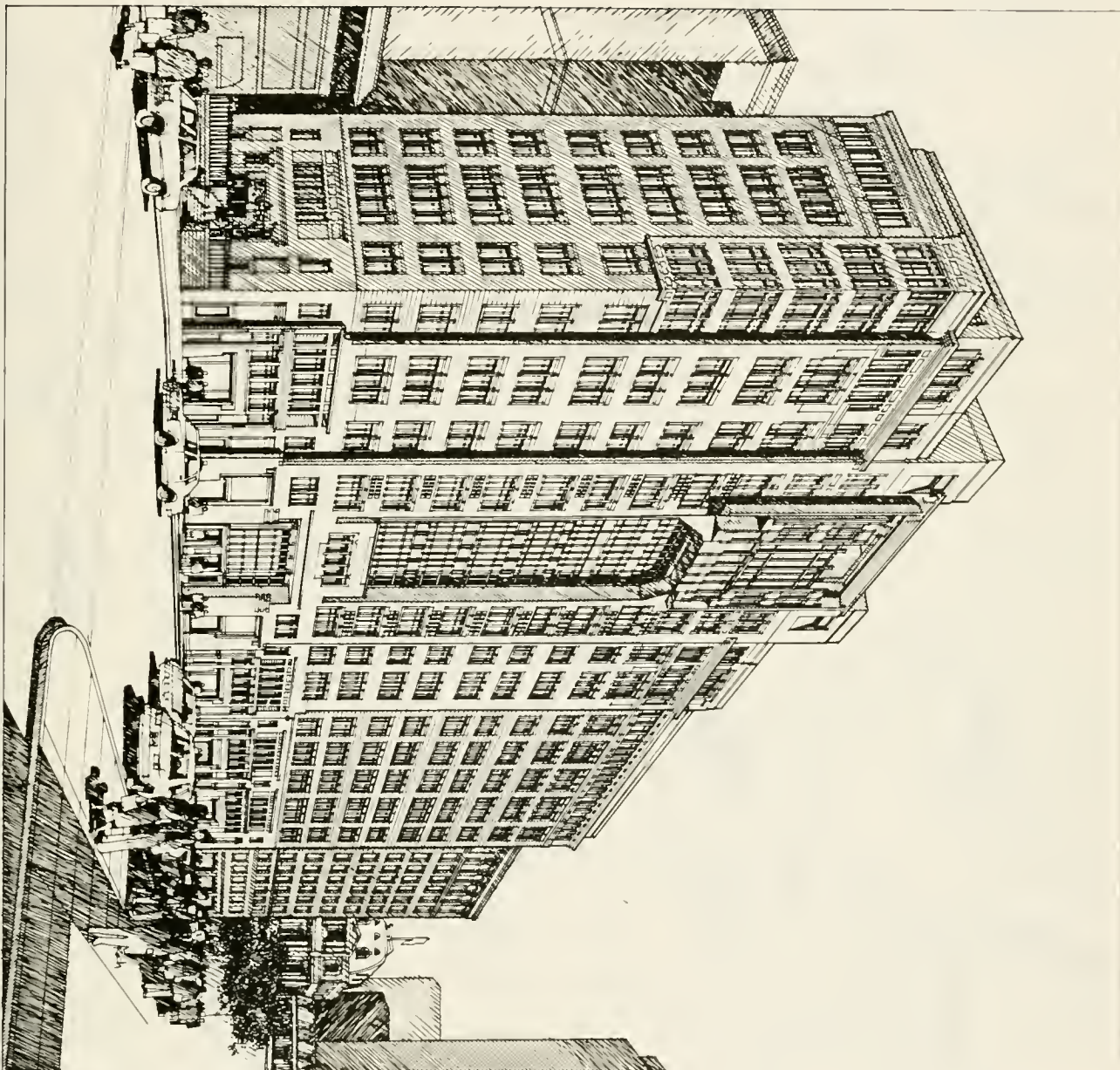


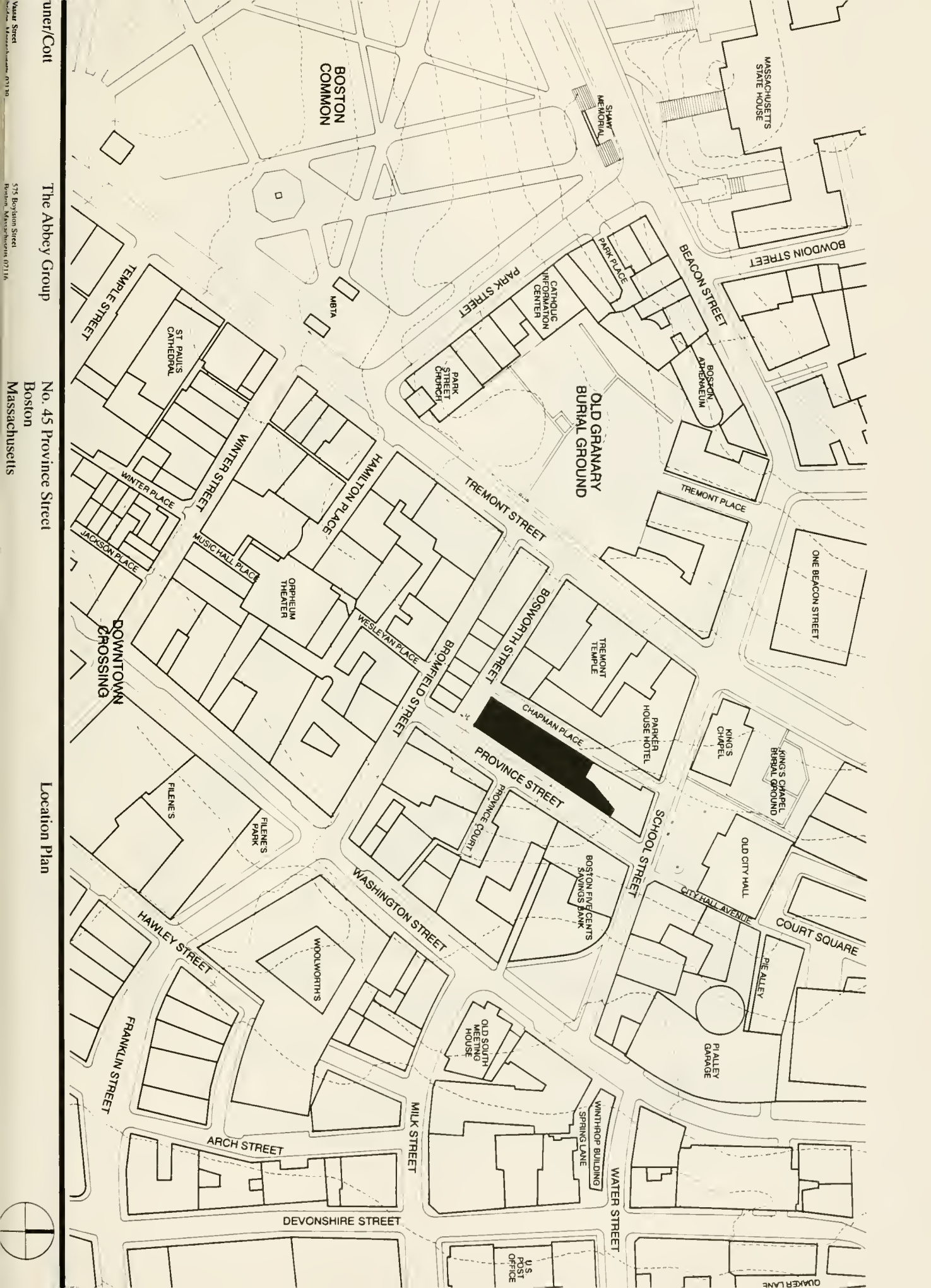


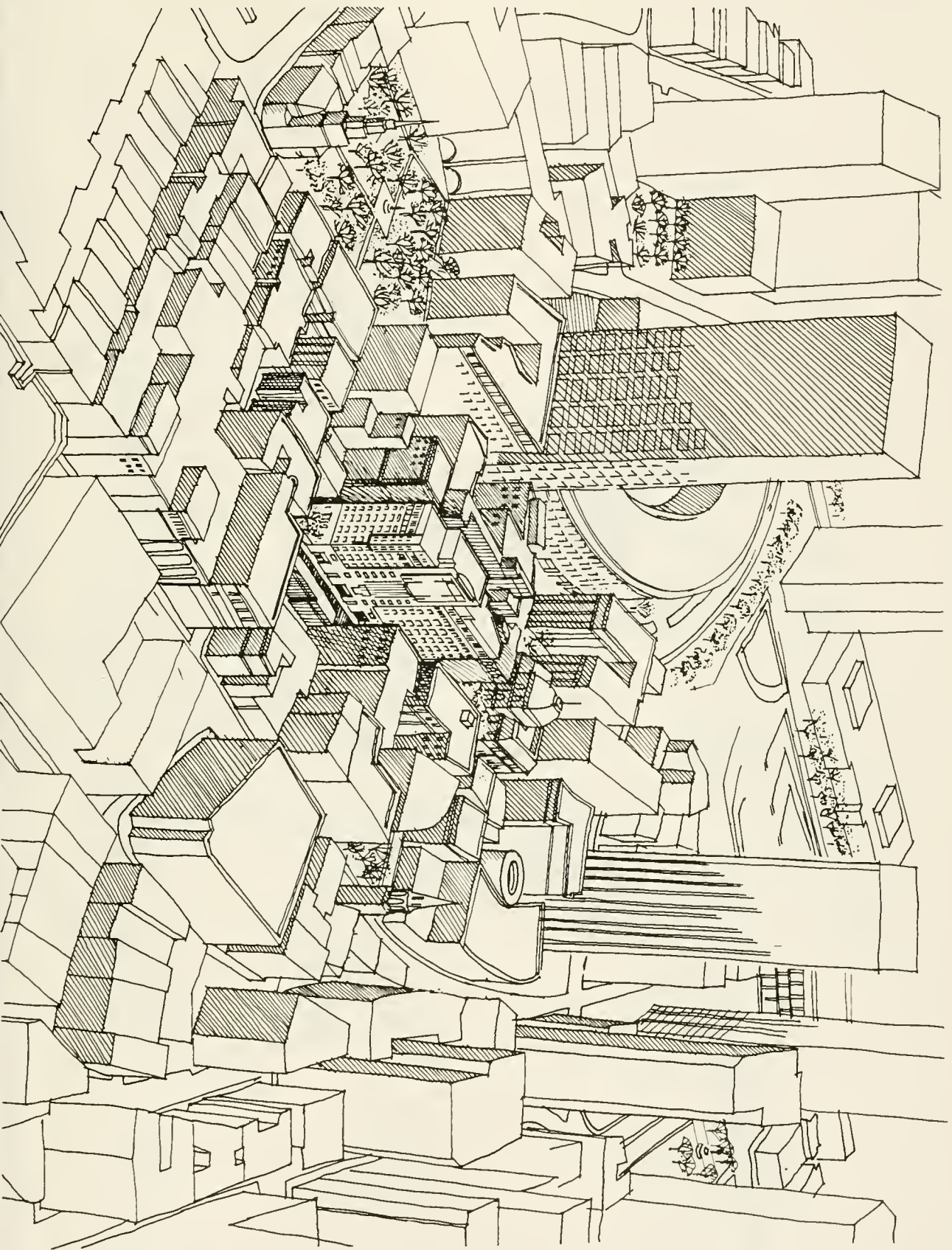




SCHOOL
STREET





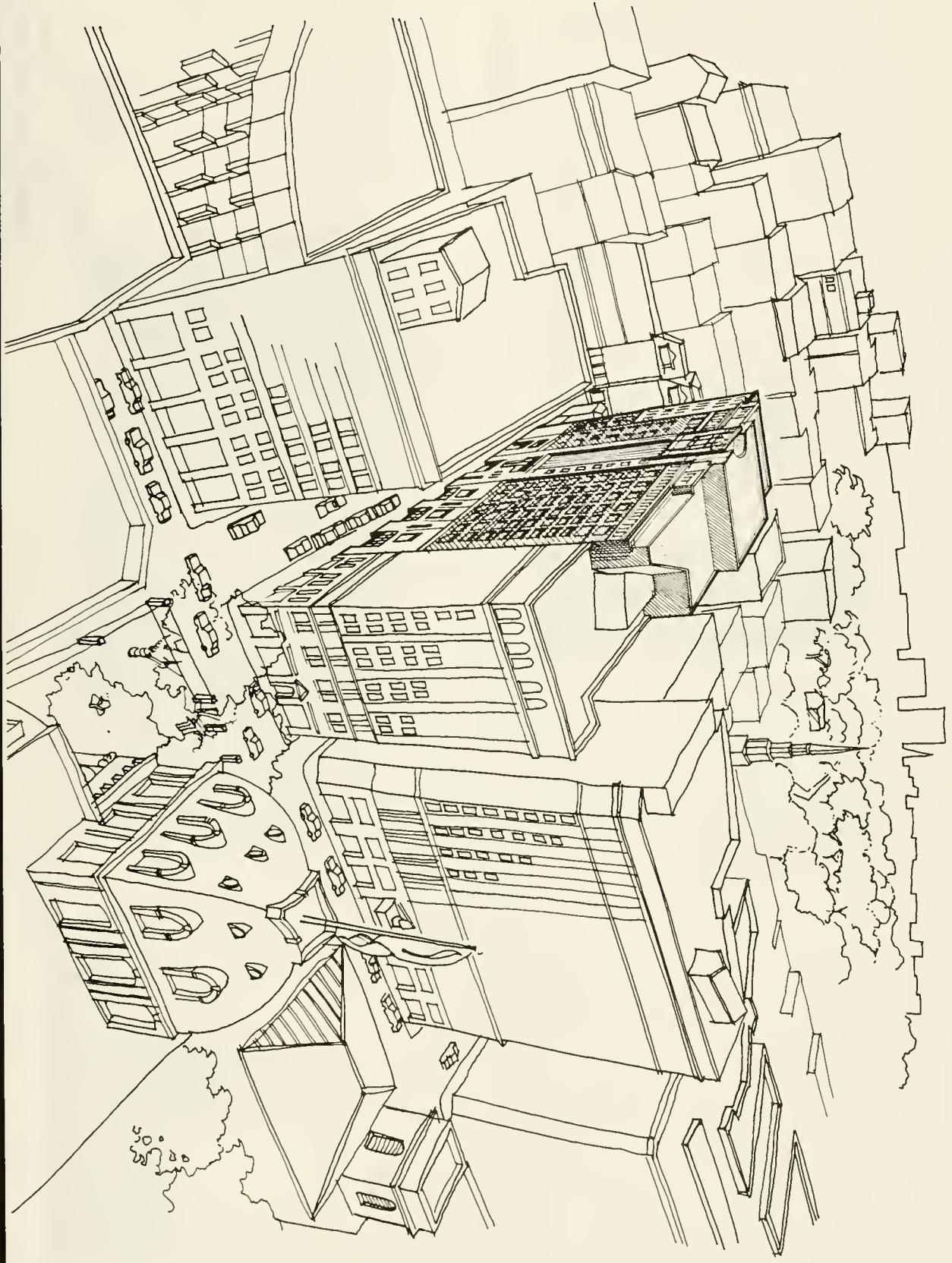


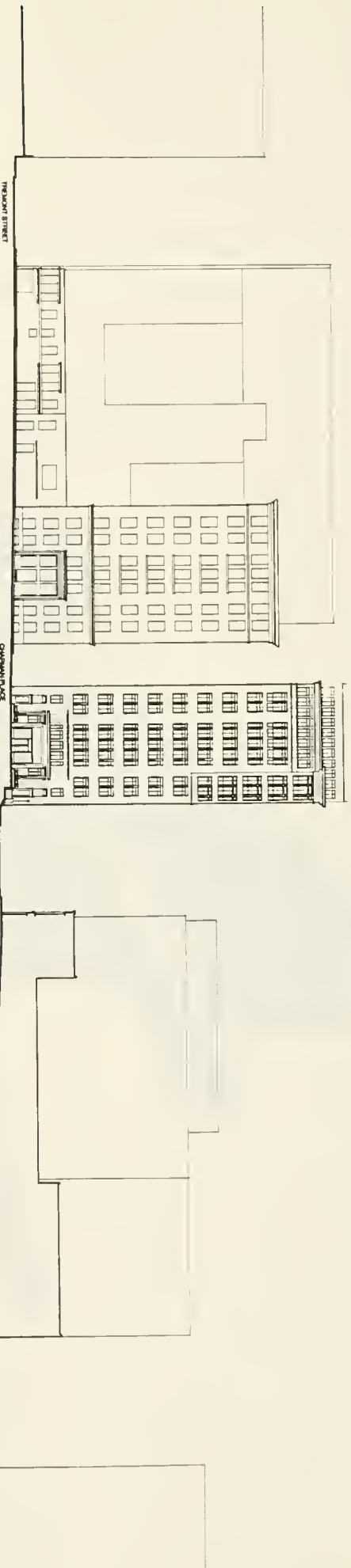
The Abbey Group

575 Boylston Street
Boston, Massachusetts 02116

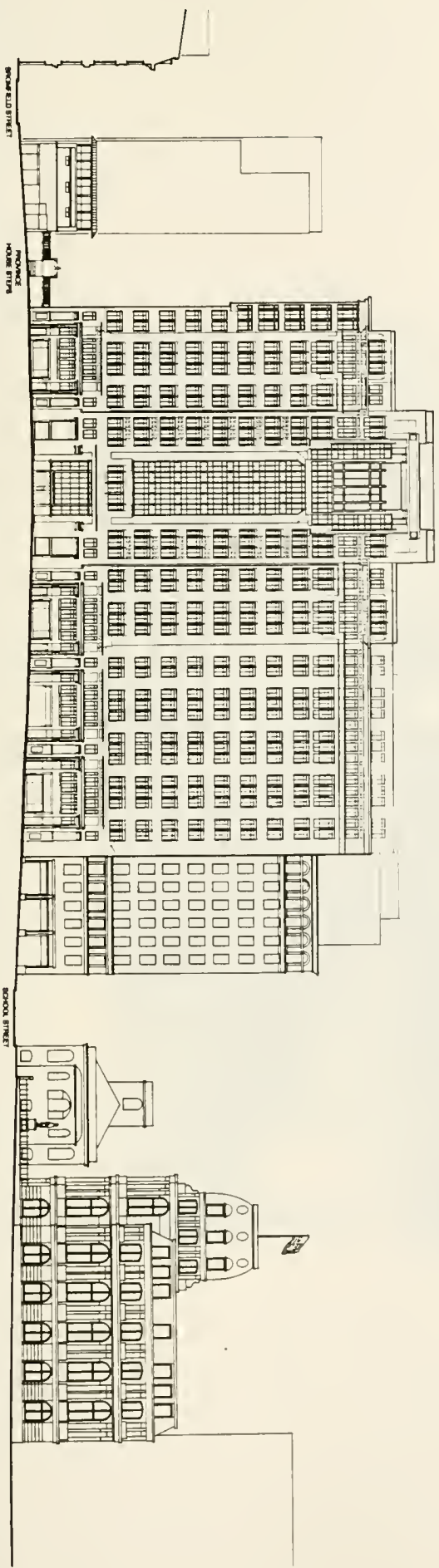
No. 45 Province Street
Boston
Massachusetts

Aerial view from northeast

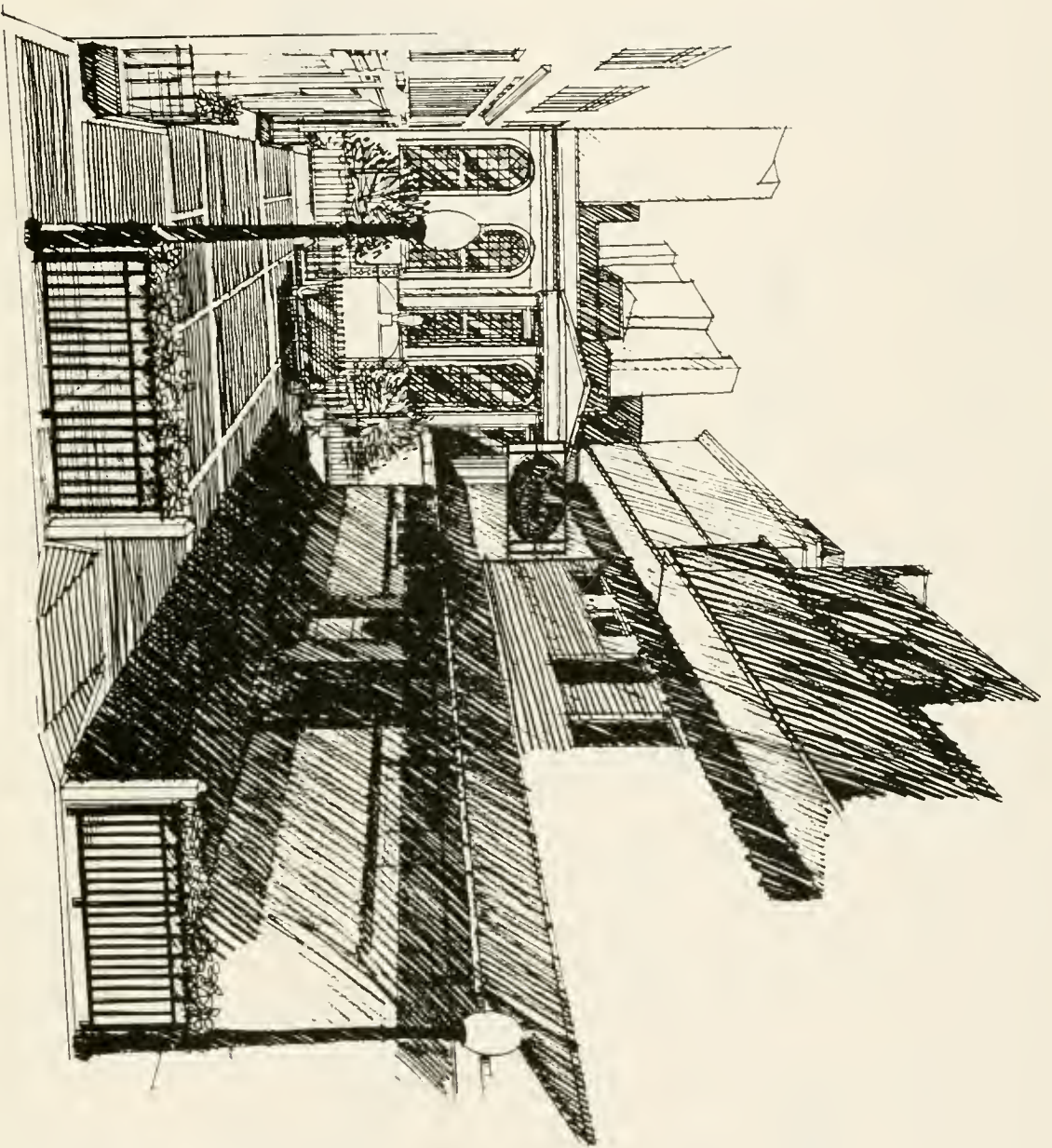




SECTION ALONG BOSWORTH STREET



SECTION ALONG PROVINCE STREET



View of Park from Bosworth Street

No. 45 Province Street
Boston
Massachusetts

The Abbey Group
575 Bevilan Street
Boston

Brunner/Cott
575 Bevilan Street
Boston

TREMONT STREET

TREMONT TEMPLE
BAPTIST CHURCH

PARKER HOUSE

KINGS' CHAPEL

KINGS' CHAPEL
BURIAL GROUND

OLD BOSTON
CITY HALL

CITY HALL AVENUE

SCHOOL STREET

PARKER HOUSE
OFFICE BUILDING

CHAPMAN PLACE

BOSWORTH STREET

BROMFIELD STREET

WESLEYAN
ASSOCIATION
BUILDING

WESLEYAN PLACE

PROVINCE STREET

HUTCHINSON BUILDING

PROVINCE COURT

PROVINCE BUILDING

BOSTON FIVE CENTS
SAVINGS BANK

The Abbey Group

No. 45 Province Street

Site and Lobby Plan

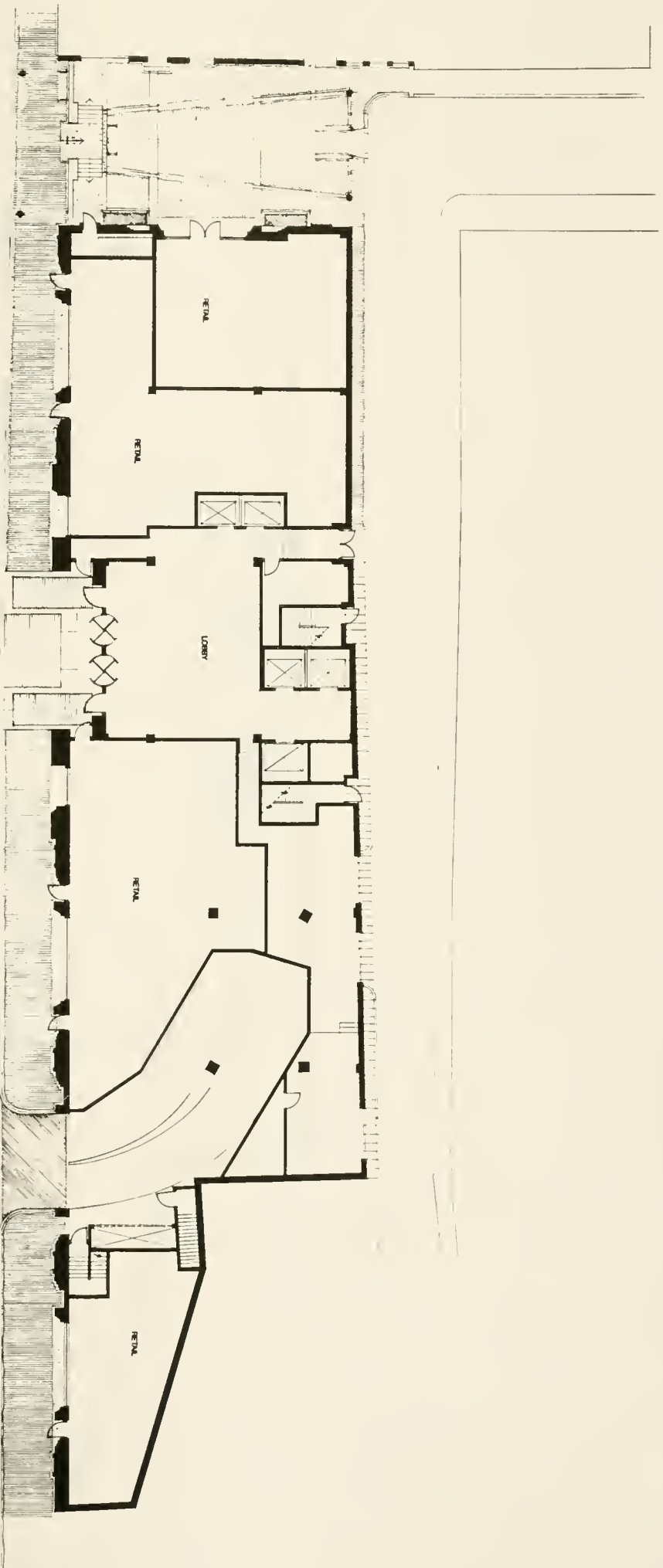
Inner/Court

Beaver Street
Boston, Massachusetts 02116

475 Bay State Street
Boston, Massachusetts 02116

Boston
Massachusetts





Inner/Cott

The Abbey Group

No. 45 Province Street

Lobby Level

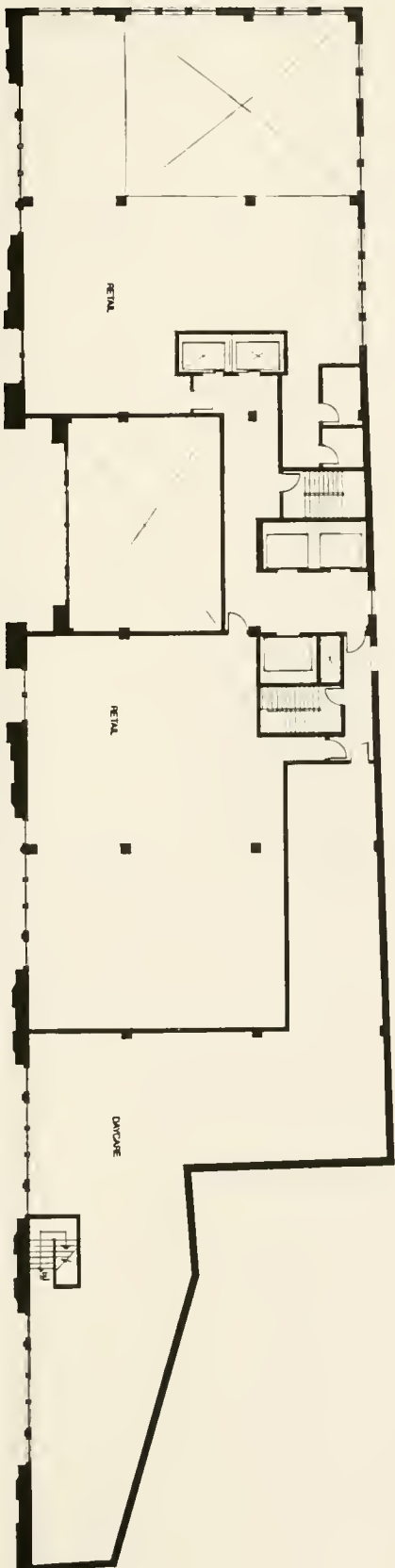
Streetscape Improvements

Street
Boston, Massachusetts 02139

515 Boylston Street
Boston, Massachusetts 02116

Boston
Massachusetts





Turner/Cott

The Abbey Group

No. 45 Province Street
Boston
Massachusetts

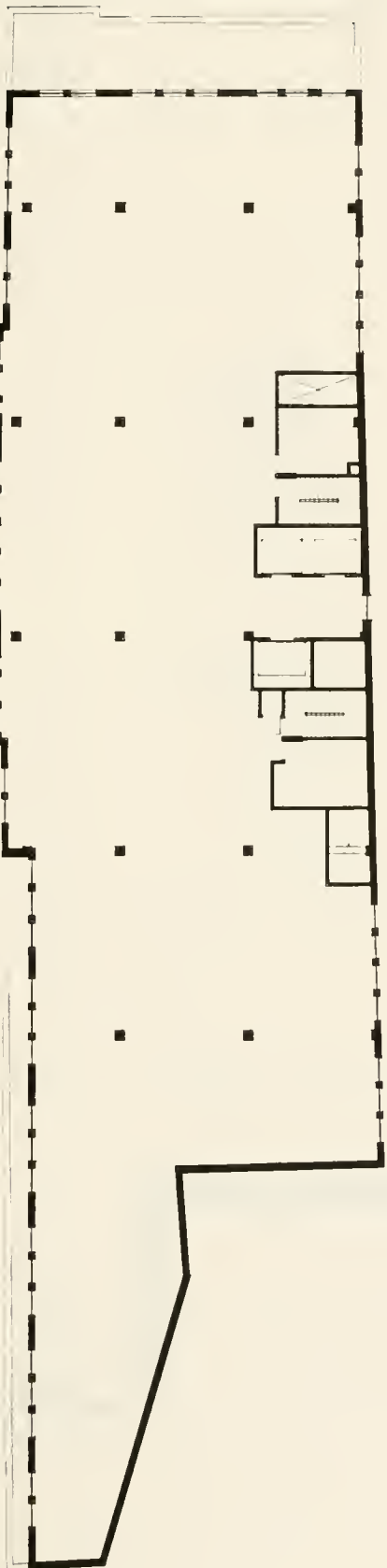
Daycare Mezzanine Level

State Street
Boston, Massachusetts 02110

575 Boylston Street
Boston, Massachusetts 02116

Boston
Massachusetts





Tuner/Cott

The Abbey Group

No. 45 Province Street
Boston
Massachusetts

Penthouse Level

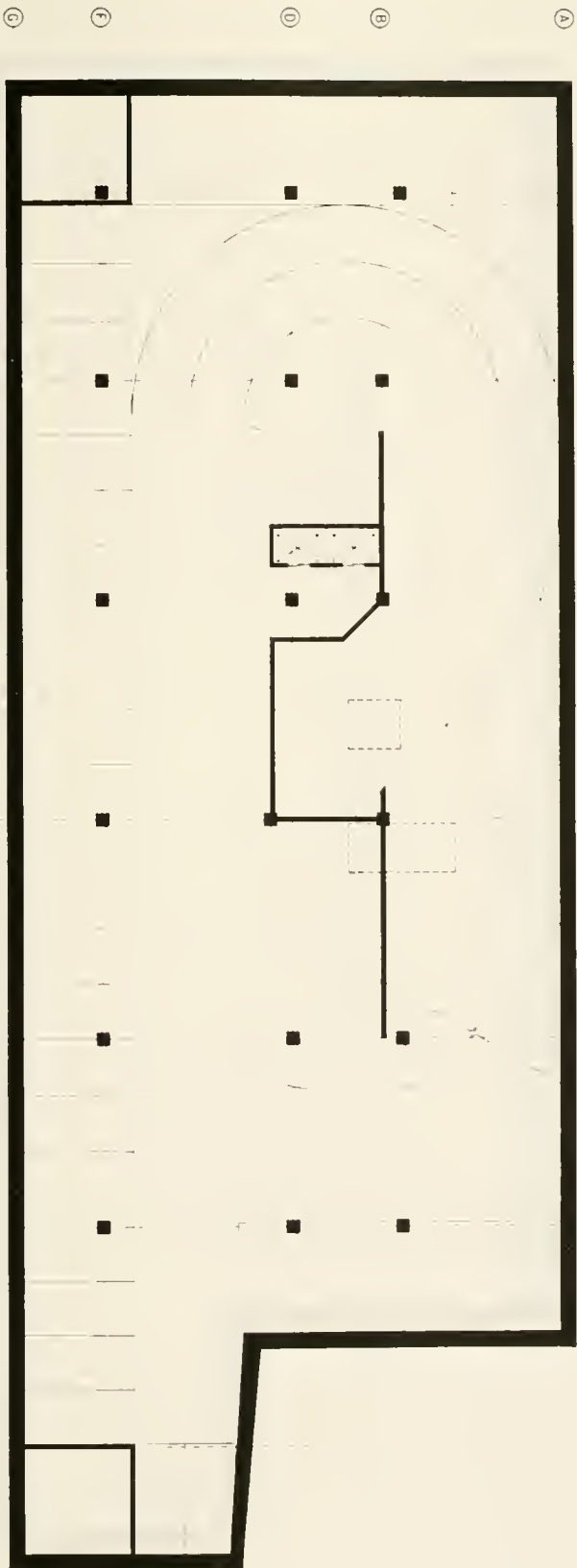
Yankee Street
Boston, Massachusetts 02119
617 266 8860

575 Bay View Street
Boston, Massachusetts 02116
617 266 8860

Massachusetts



1 2 3 4 5 6 7 8



Turner/Cott

The Abbey Group

No. 45 Province Street
Boston
Massachusetts

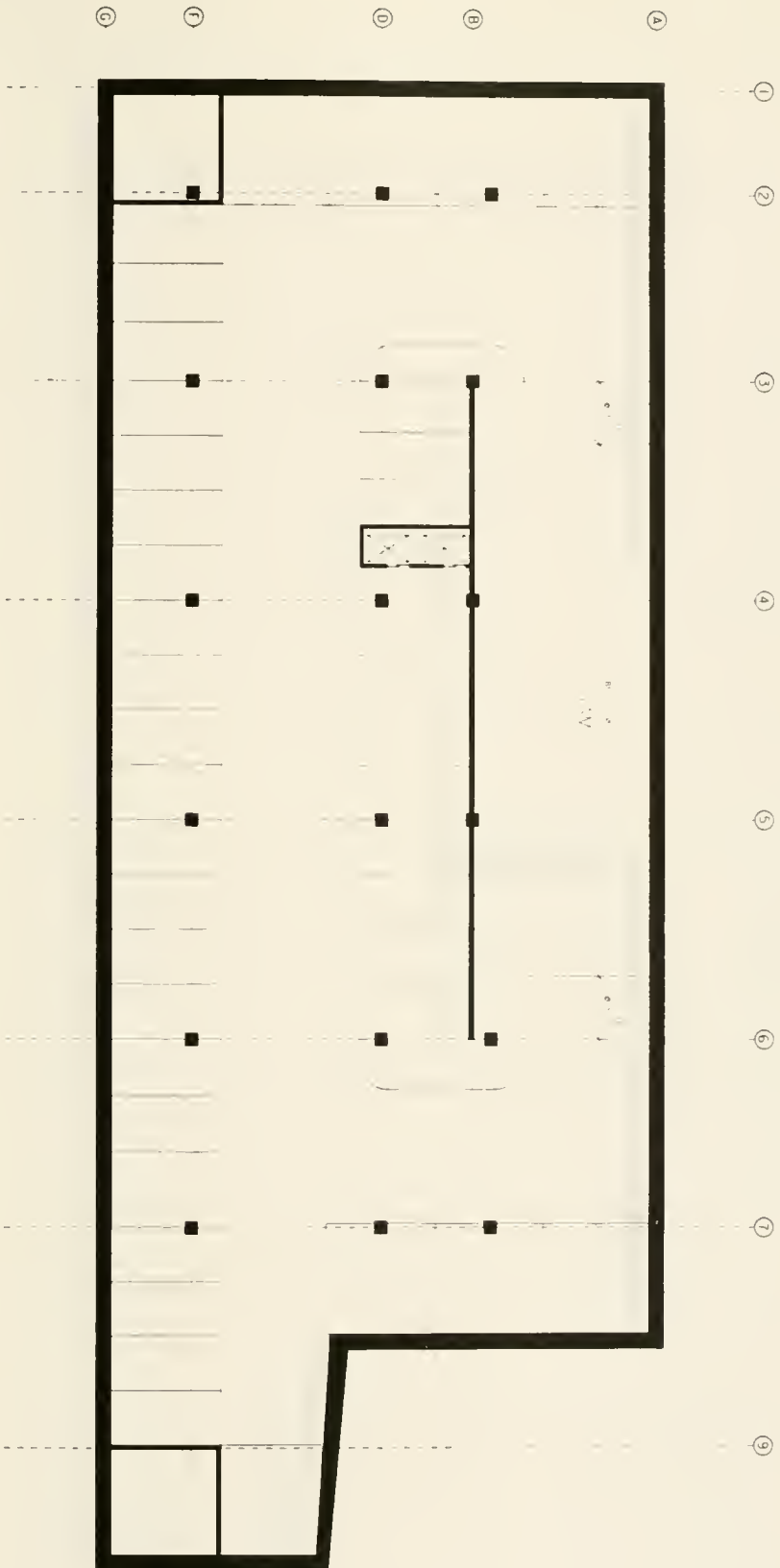
Garage Entry Level

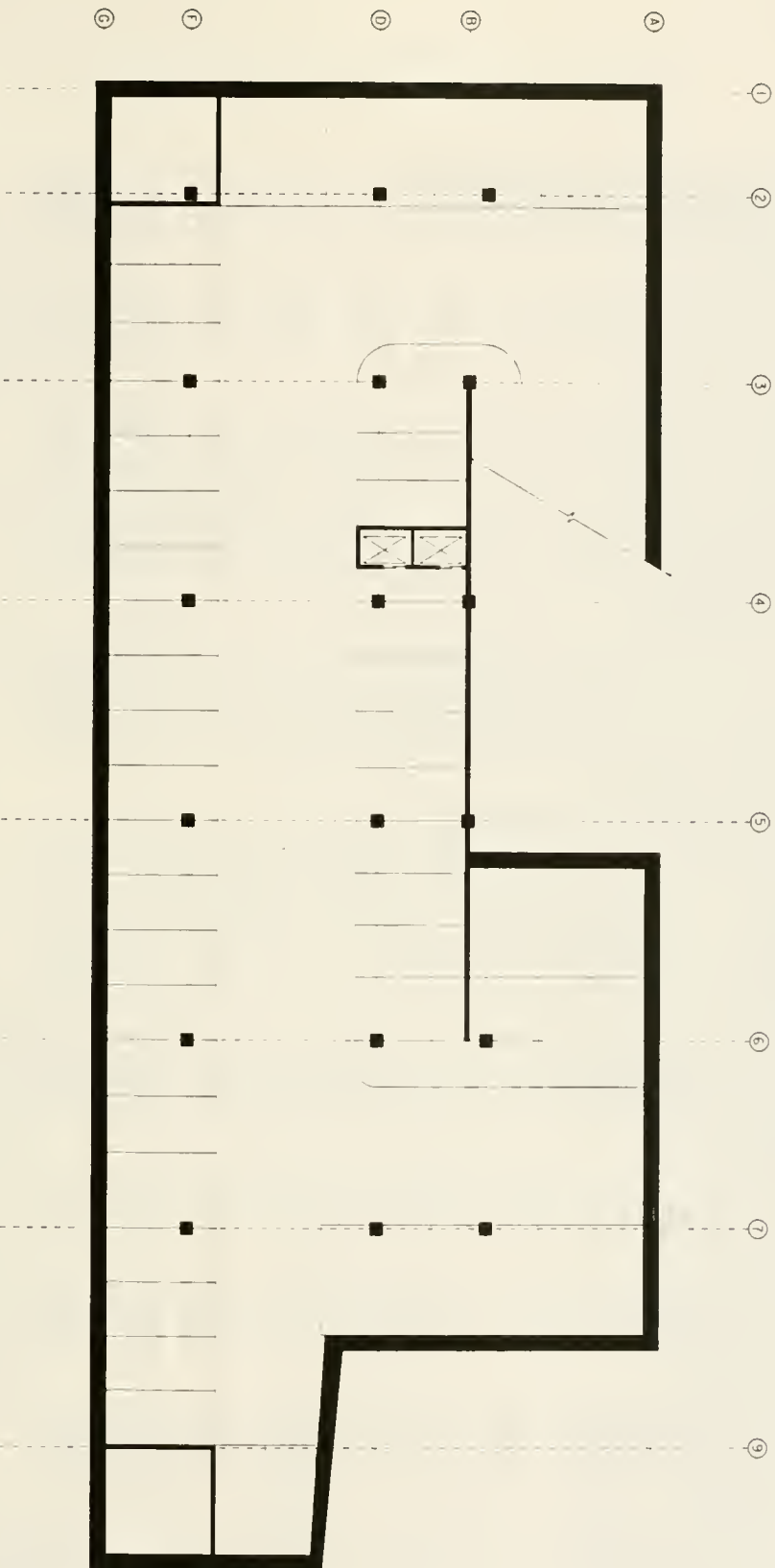
1 Vassar Street
Cambridge, Massachusetts 02139
978 4400

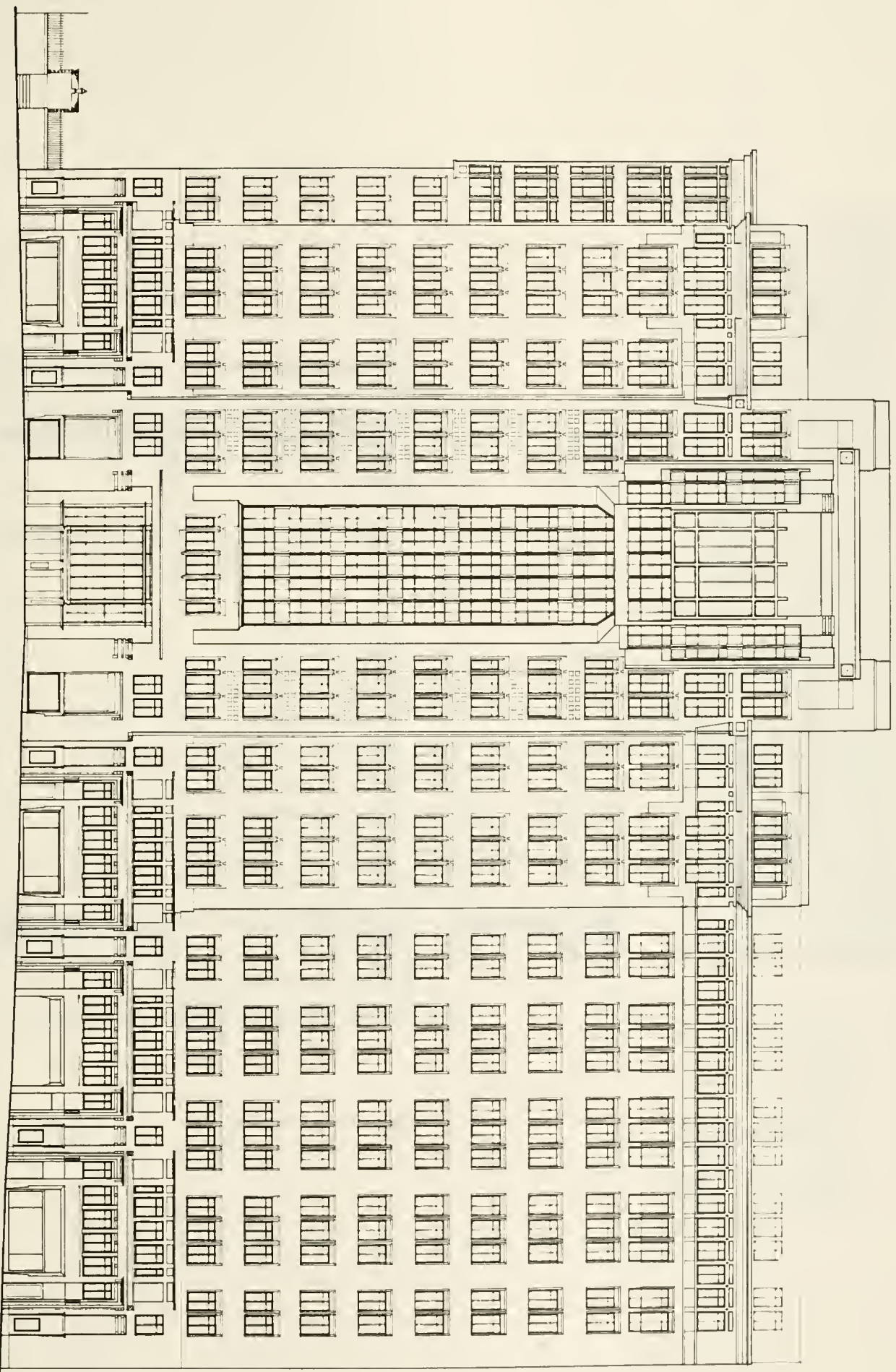
575 Boylston Street
Boston, Massachusetts 02116
617 266 8860

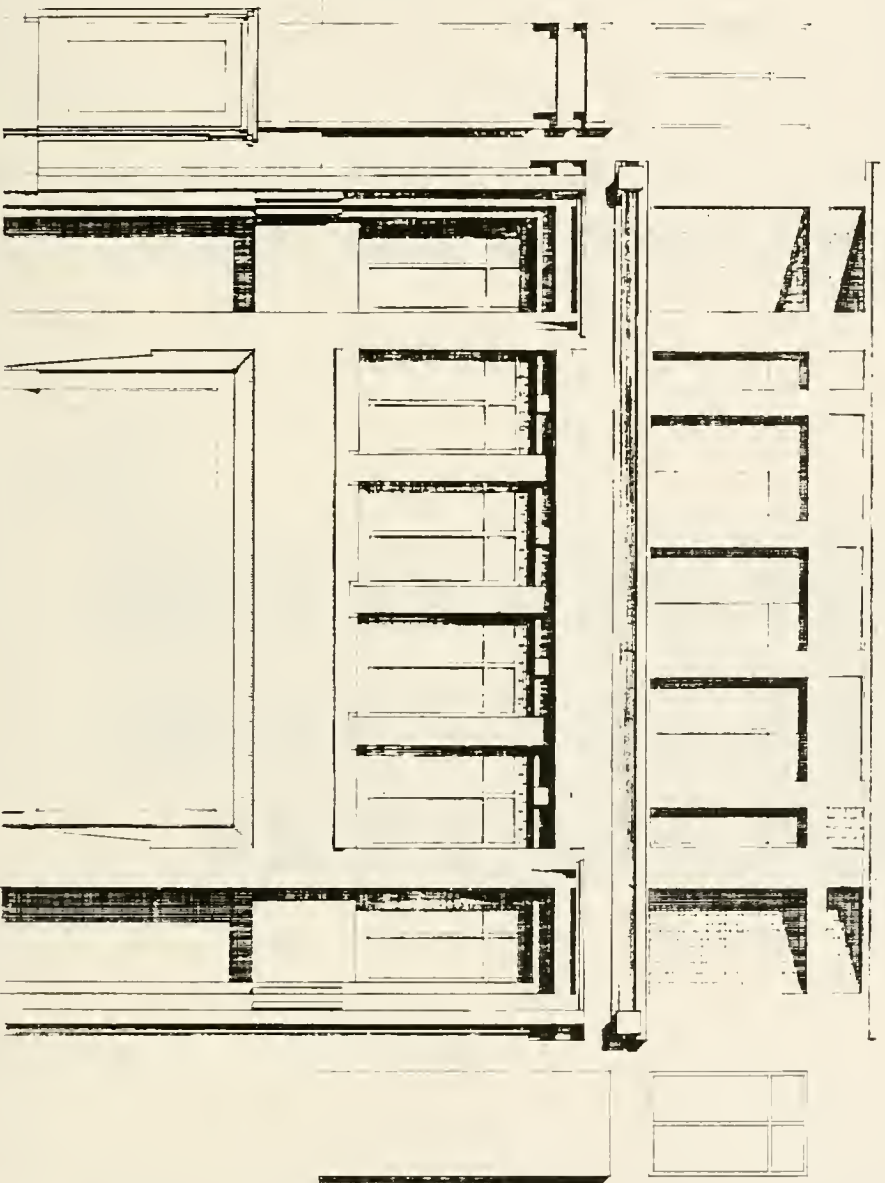
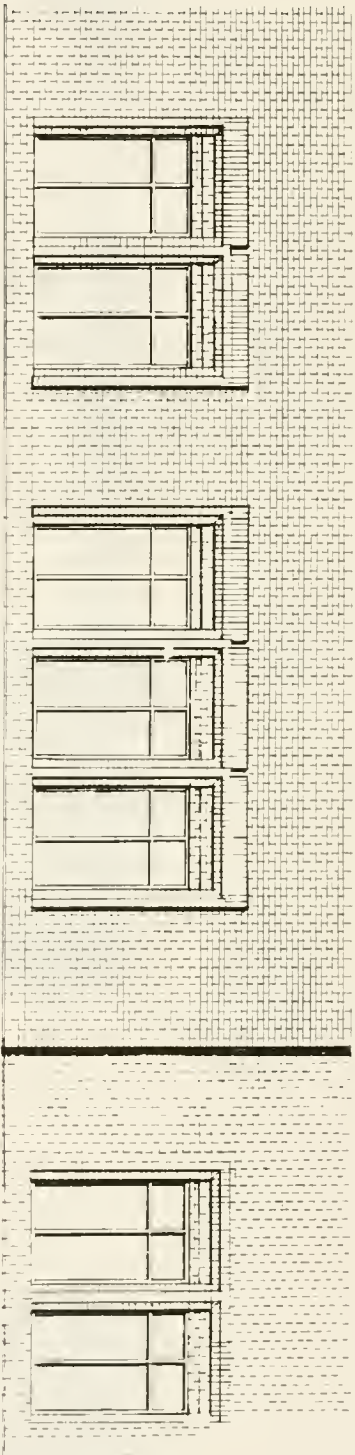
Massachusetts

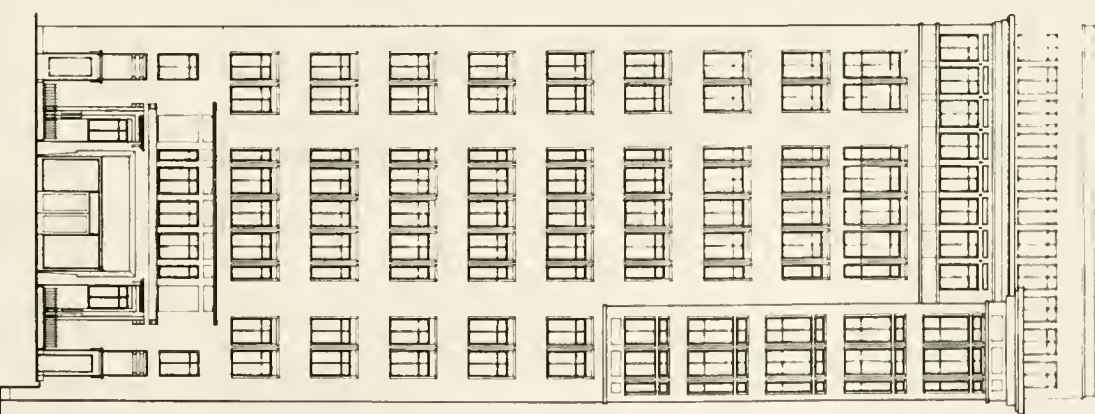
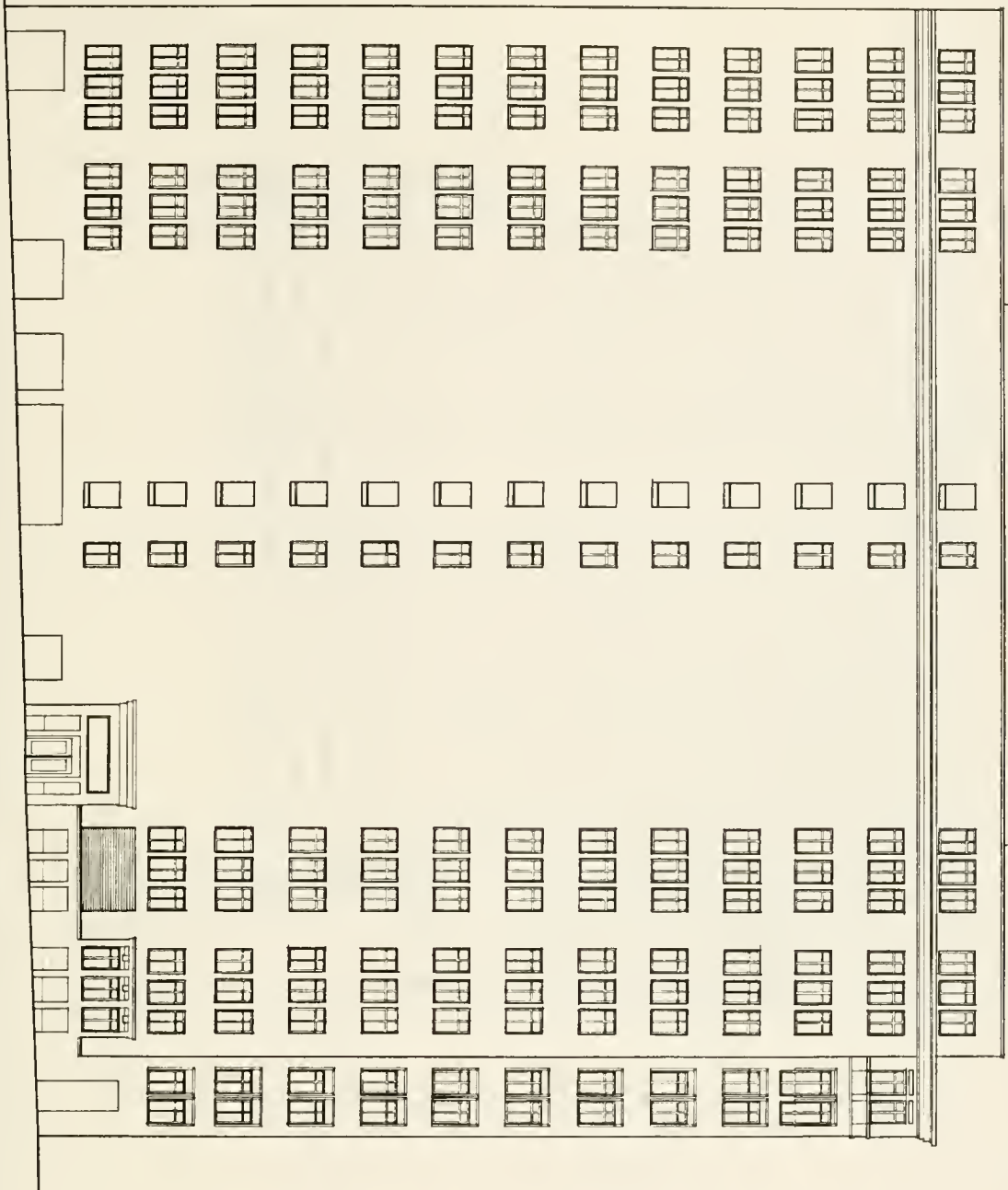


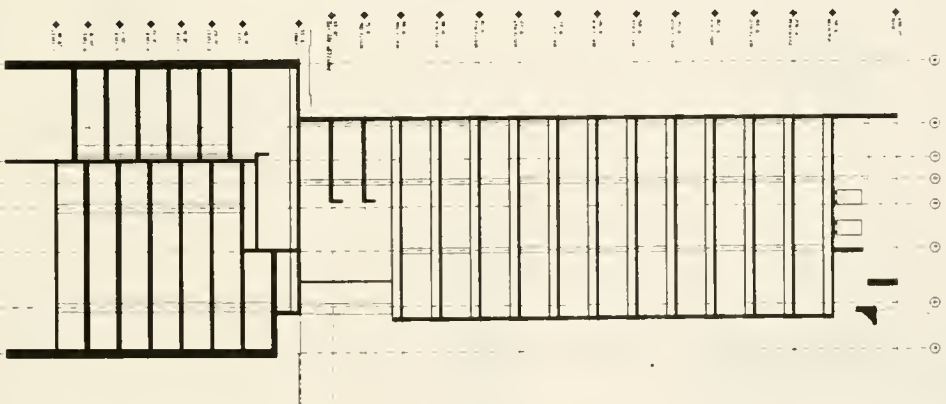
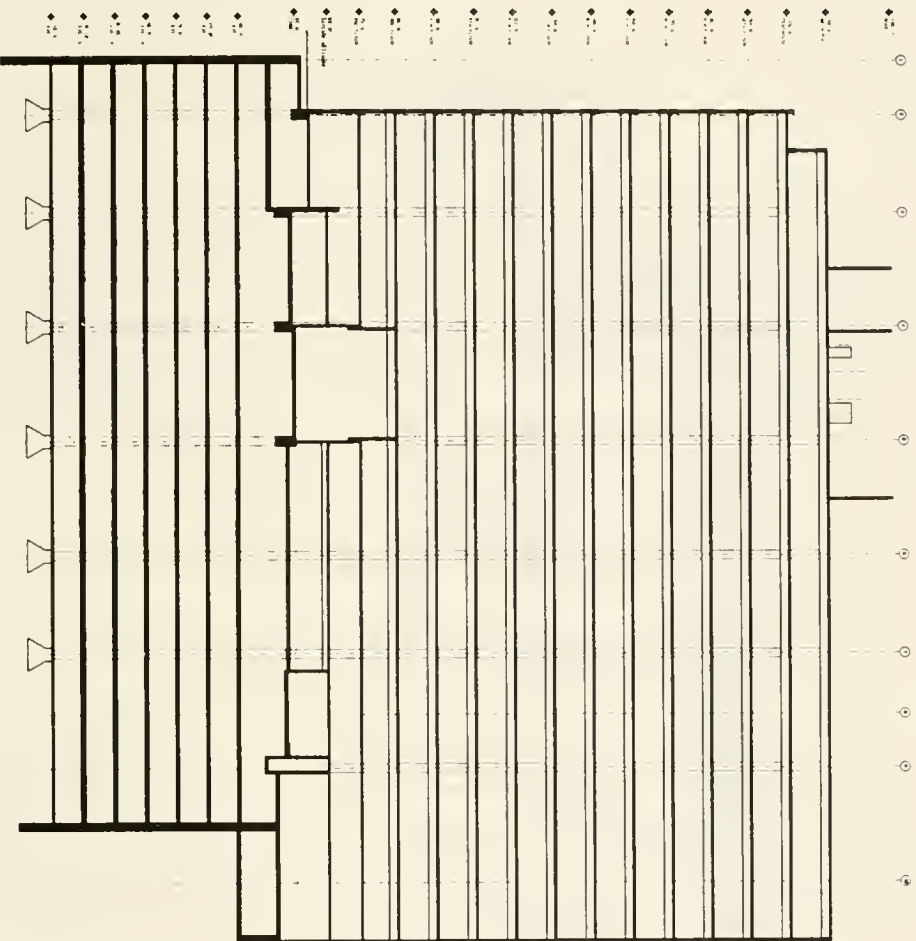












Bruner/Cott

The Abbey Group

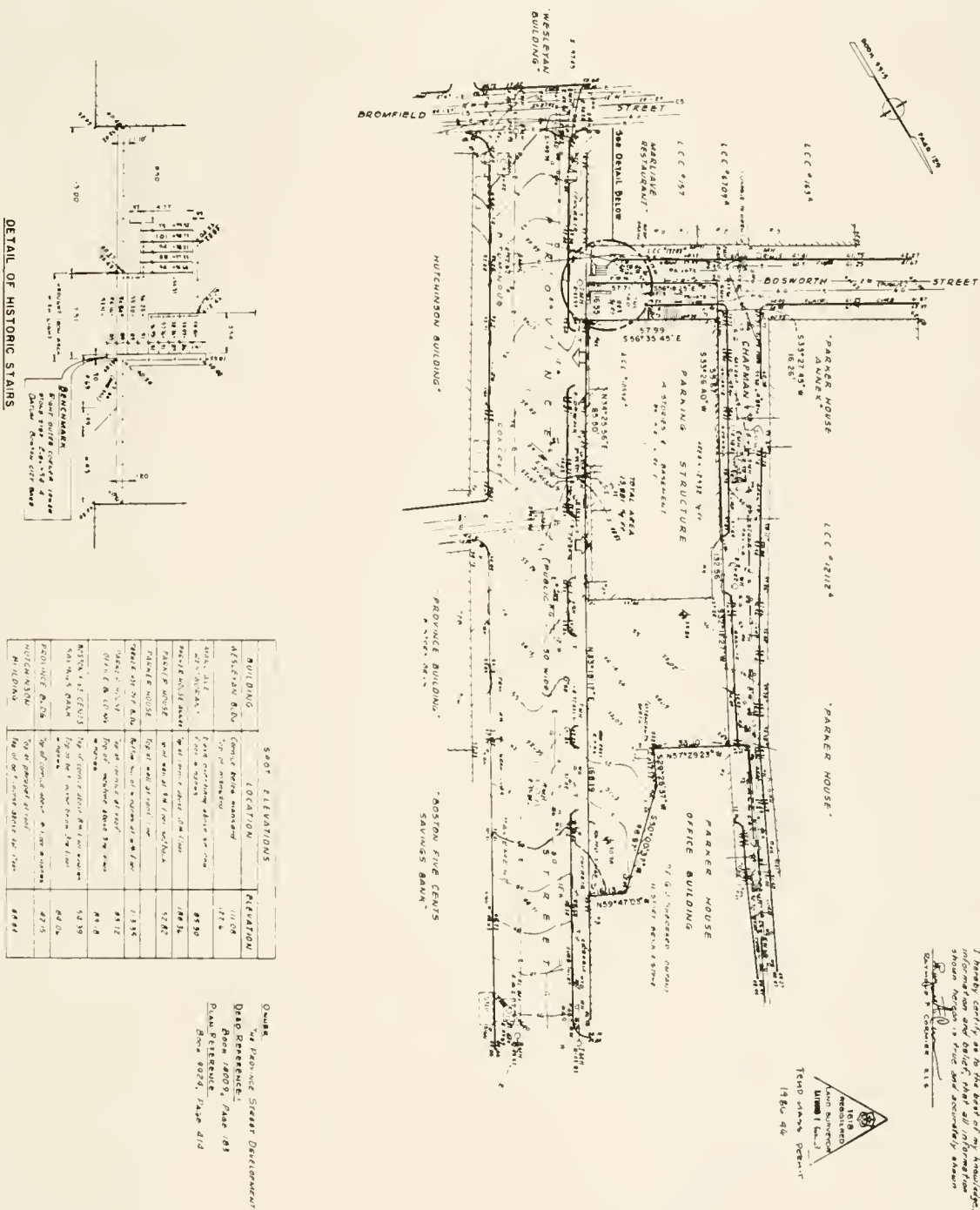
No. 45 Province Street

Building Sections

101 Vassar Street
Cambridge, Massachusetts 02139
Architecture/Urban Design

515 Boylston Street
Boston, Massachusetts 02116
617 266 8960

Boston
Massachusetts

[illegible]

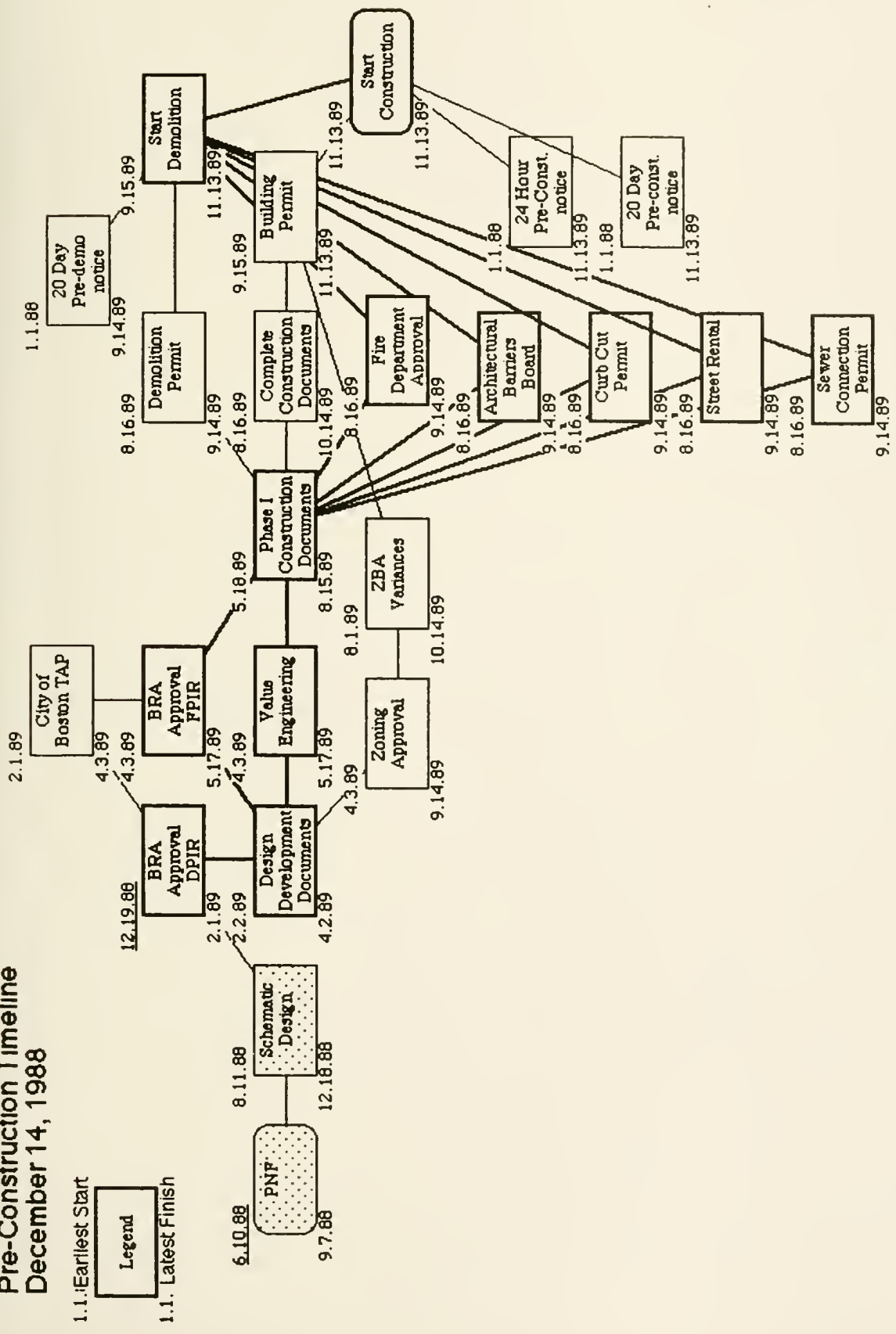
Quesada
The Province Street Development Trust
Dead Reference:
Room 18009, Page 103
Plan Reference
Draw 9024, Page 414

NOTES:
Utilities shown are from available record plans and field survey. Their locations are not warranted to be accurate or complete. Prior to any construction notify "Dig Safe".
(Telephone 1-800-922-8844)

- [illegible]

PROPERTY LINE
TOPOGRAPHIC PLAN OF LAND
IN
BOSTON (SUFFOLK COUNTY) MASS.
SCALE: 1"=20'
JANUARY 23, 1968
Prepared by THE ABBEY GROUP, INC.
400 NINOTAM STREET
ROCKLAND, MA 02370

Province Street Pre-Construction Timeline December 14, 1988



Historic Resources Component

THE AREA:

While there is no historic significance in the existing parking structure that currently sits on the development site, the area is surrounded by noteworthy buildings. The map on the following page identifies the important buildings immediately surrounding the site.

The site distances from the Wesleyan Building, the Ladder Blocks Historic District, the Tremont Temple, Old City Hall, and 110 and 120 Tremont Street are sufficient to preclude any impact on these buildings.

In order to achieve the greatest protection for the foundations of buildings which are in closer proximity to the underground portions of the building, slurry wall foundations will be employed. The geotechnical consultants have indicated that this methodology will insure that there is no impact on the foundation and structure of the Hutchinson Building, the Parker House Office Building, the Parker House, the Province Building and the Boston Five Cents Savings Bank.

45 Province Street has been designed with a sensitive approach to its historic surroundings. While asserting its own presence on the street, it does so without overwhelming its surroundings. Also of significance to the historic resources in the district is the creation of a dynamic pedestrian oriented ground level. Many long dormant pedestrian thoroughfares will be reactivated encouraging public awareness of district.

THE PROVINCE HOUSE STEPS

Once known as Governor's Alley, Province Street runs through the former garden area of the Province House. All that remains from that residence are the remnants known as the Province House Steps.

The following excerpt is from material provided by the Landmarks Commission:

"The Province House Steps are all that remain from the estate which was known as the "Province House" (1679-1864) which served as the residence for ten Royal Governors. The house faced onto Washington Street and extended to Province Street, where these steps led to the garden and stables for the residence. Originally the stairs split into two sections at the low landing with one going to the left and one going to the right. In the 1920's after the widening of Province Street, a basement was excavated for storage in conjunction with a building on Bosworth Street. As the right portion of the steps were in the way of the excavation, they were relocated so that this section went straight up from the landing."

Discussions with Landmarks' Commission historians and an evaluation of the site indicate that there is a very low probability for finding items of archeological significance. Deep excavations which were necessary for the construction of the garage, street utilities and the littliest bar would have disturbed all of the original grounds.

A complete restoration of the steps along with the creation of a public park adjacent to the steps will be undertaken by the developer. As part of this project, the developer will be working with local historians to create a plaque or monument which further educates the public as to the historic significance of both the steps and the area.

STUDY REPORT ON PROVINCE STREET STEPS

DESCRIPTION

Masonry

The Province Street steps rise directly from the sidewalk through a retaining wall to the raised level of Bosworth Street. Half of the lowermost stair width continues as a straight flight. An intermediate landing and low retaining wall allow a second flight to climb at right angles to the sidewalk at the southern edge of Bosworth Street.

The stair is built of coarse, grey granite steps with each tread and riser unit formed as an individual element of construction. The steps are worn from foot traffic and exposed ends are roughly formed. The small half-landing is made of two pink granite slabs with smaller paving stones of the same material adjacent to the low retaining wall.

The area of retaining wall to the south of the steps along Province Street is built of roughly formed granite infill surrounded by dressed granite blocks along the top and at the stair. Portions of the wall near street level are filled with red brick and brownstone. The coping stones are very roughly dressed with flat tops.

The wall to the north of the stair has been reduced to a pier of dressed granite blocks, a granite coping covered with tar and a beam spanning the opening to a vault which is three steps below sidewalk level and houses a commercial tenant.

The low retaining wall at half-landing level is built of red brick with a granite block at ground level and a granite coping above.

Ironwork

All three retaining walls have iron railings set into their coping stones and the initial rise of steps is framed by an iron gateway which incorporates a lantern.

The ninety-degree ascent has a handrail along the retaining wall. The upper portion of the straight flight has a similar handrail on its southern side.

The railings along the main retaining walls have square fluted balusters and spear point heads above a half round bead. The rail itself is flat wrought iron with mortised holes. Balusters are leaded into sockets in the coping. The south coping has shallow depressions for sockets and no lead.

The railings on the Bosworth Street side of the retaining wall are plain square wrought iron bars which pass through a mortised rail and end in tall sharp four-sided spikes. The railings running perpendicular to Province Street are badly bent and broken. There are two altered and broken finials on larger round cast iron balusters.

The framework of the gateway is a wrought iron uprights incorporating steel replacement sections, a wrought iron arch in two sections with delicate wrought iron vine and scroll motif.

The uprights have been filled with four, two dimensional cast-iron panels with abstract shell and diamond pattern, a single greek key panel at the base of one side, and low semi-circular palmettes at the top of each upright. These decorative cast iron pieces are welded into place.

A further element of wrought iron has been fastened across the face of the uprights and their decorative infill to support a large gas lantern. Steel electrical conduit has been run along this member to an electric spot light above the initial flight of stairs.

Condition

The masonry elements are sound except for soft sandstone infill and anchored coping stones. The steps are high, short and sometimes tilted. Footing is difficult.

The ironwork is generally sound, but balusters are missing and some heads and sections of iron are badly damaged. Corrosion is not extensive.

The lamp is complete but poorly anchored and the archway which supports it lacks rigidity.

Folklore and Records

In the twentieth century, the steps and their gateway have been vaguely linked to Province House along with the idea that they led to gardens and stables belonging to the Governors mansion. The firmest statement is in Boston Ways by George Weston: "Why the steps were built or by whom are questions that will probably never be answered; but it is a reasonable guess that this was a feature of the garden of the Province House in the days of its royal magnificence."

Weston admits that the true origin of the steps and gateway may never be known, and it is possible that his knowledge sprang from the misinterpretation of a confusingly worded passage in Bacons Rambles Around Boston, published in 1914:

"Such is the quaint iron gateway at the foot of the short court - Bosworth Street it is now... we find the court ending at a low stone barricade, with flights of heavy, rough, well-worn stone steps in the middle, leading down to a gateway; and the gateway opening across a narrow cross street of a single team's width - Province Street of today. For this was, Province Court opening from it eastward, originally the avenue of the stables and rear grounds of the Province House." A plaque mounted on the railings informs curious pedestrians that the steps may have led to the stables and gardens of Province House implying that these were located in the vicinity of Bosworth Street.

In Boston Then and Now, the caption to a photograph of the steps states: "The steps... were originally part of a mansion which housed Royal Governors in the eighteenth century. Province house, as it was called, was torn down by 1825 and Bosworth Street was laid out where its gardens once were. The ornamental gates lantern originally lighted by oil; in this view by gas jet."

7
The Marlave Restaurant has been associated with the steps since the nineteenth century, not least in 1982 when one of their bartenders drove his car through the railings, gateway, granite copings, and down the stairs into Province Street. The damaged ironwork was replaced with minor repairs, new copings were fitted to the south retaining wall and other dislodged masonry was reset.

An article in the Boston Globe, December 25, 1927 connects the construction of the steps to the creation of Bosworth Street in 1825: "In 1825 when the stairs were placed there, the street was called Montgomery Place, after General Montgomery... The street, from Tremont Street to Chapman Place was extended and laid out in 1883 and then it was called Bosworth Street. The part from Chapman Place to Province Street by way of the stairs was built later."

An article in the Boston Sunday Globe, August 16, 1908 also links the steps to the creation of what is now Bosworth Street, but does not claim 1825 as the date of their construction: "In 1825 Bosworth Street was cut from Tremont to Governors Alley through a residential garden as a private street. When Chapman Place was extended, Montgomery Place was accepted as a public street as far as the east line of Chapman Place and was renamed Bosworth Street. May 14, 1883 in memory of Zaccheus Bosworth whose estate extended from School Street to where Bosworth Street now is.

The easterly end of the street remains to this time a private way and anyone sustaining personal injuries near the stone steps would have to look to the abutting property owners and not to the city if seeking financial balm."

The 1927 Globe article finally states that upon their centenary, the steps almost disappeared: "In 1925, when the stairs were torn up so that Province Street might be widened, it was decided that the stairs should not be replaced. But after the street was widened, the decision was changed and the stairs were put back."

In spite of the contemporaneity of the report, and the fact that the Boston Press Club was located in Bosworth Place, the physical and photographic evidence suggests that if demolition occurred, it was restricted to the area associated with the vault which now houses the Littlest Bar. Certainly the railings, gateway, granite copings, steps and the south retaining wall are identical to those elements in a photograph of the steps attributed to the period around 1890.

Two photographs from the files of the Society for the Preservation of New England Antiquities, combined with a City Surveyor's maps dated December 13, 1880, March 12, 1883, and Bromley Atlas maps dated 1917 and 1922 show the stairs in their earlier configuration, with symmetrical flights parallel to Province Street and springing from an intermediate landing.

The Boston Landmarks Commission Information Form for 47 Province Street, The Littlest Bar, states that the north flight of stairs was relocated when the vault was excavated after the widening of Province Street in order to provide storage space for a building above on Bosworth Street. By 1930 the Boston City Directory listed a barbershop owned by Antonio Bonaccorso. At an unspecified later date, it was converted to a bar, now The Littlest Bar.

Summary

It seems unlikely that the retaining wall and steps were associated with the stables or gardens of Province House. Evidence for the location or even the existence of gardens and stables connected to Province House remains to be found. There is a reference to a stable and coach house rented by Sewall to the Province for the use of Governor Lord Bellamont in 1699 on the Pyncheon lot where the Horticultural Hall stood in the late nineteenth century at the corner of Bosworth and Tremont Streets. (Mass. Hist. Soc. Proceedings 1885-86, Second Series, Volume II; and History and Antiquities of Boston, Drake, Samuel G., Boston, 1856). According to the Post, May 11, 1924, John Ballard owned and operated a livery stable at the corner of the present Bromfield and Province Streets, which abutted the rear of Province house in the late eighteenth century.

The form of the older granite copings may suggest an early nineteenth century origin.

The main framework of the gateway could be eighteenth century in origin, as could the railings, which seem to incorporate ironwork from three different sources both in terms of craftsmanship and design. The cast iron ornamental infill panels are unlikely to antedate the 1850's. The crude handrails were erected in the 1920's. There are traces of original balusters on the south stair treads along the main retaining wall and a circular iron upright appears to have been cut away from the step immediately below the lantern. It is likely that every piece of iron work in the assembly, except for the handrails, was relocated from elsewhere and reused.

Proposal

Prior to the demolition of the existing garage at 45 Province Street and the start of the slurry wall construction, the ironwork and masonry of the retaining walls, stair and gateway will be documented in photographs and measured drawings. Individual stones, balusters, rails, gateway elements and lantern will be labelled and their positions indexed to both record and proposal drawings.

The preservation concept is to; replace the steps as they were prior to the 1920's rotation of the north flight from its symmetrical position; clean and carry out only necessary repairs to stone and metal; replace missing iron balusters with new "blank" balusters, leave damaged but sound iron and stone in its present form (bent spikes, chipped or worn stone); rebuild the retaining wall at The Littlest Bar to reflect the storefront adaption from the 1930's (recessed granite or a recess with different material), and overhaul and electrify the existing lantern using exposed conduit. The lantern frame will be mechanically connected to the wrought iron arches to provide greater rigidity.

The rotation of the north flight involves a minimum of speculation and produces a superior stair design - visually, ergonomically, in terms of safety, and produces a better courtyard plan at the level of Bosworth Street.

5
Elements likely to be too damaged to reuse include soft bricks and sandstone. If these are lost, they will be replaced by new bricks of a similar color and size, but with no attempt to disguise their recent provenance. Some ironwork connections will be ruined during disassembly.

The ironwork will be stripped to bare metal only where paint adhesion is poor and corrosion has begun. These areas will be primed immediately. The feet of rails are generally sound but where corrosion has seriously reduced their diameter or length, they will be built up with welds and ground smooth. Balusters will be fixed in their coping sockets with molten lead. The Marliave has kept a broken pineapple finial, which will be reattached on top of the low retaining wall.

When the walls, steps and ironwork are reassembled, they will present a record of previous wear and tear and historic adaptations, even if these incidents are more closely related to bartenders than Royal Governors. The developer is exploring ways to provide interpretative material about the stairs and Bosworth Street with a public art consultant and relief sculptor.

Chronology

- 1643 Plan by Samuel Clough shows detached houses along School Street (unnamed) without north-south penetrations for service alleys. Richard Cook and Arthur Perry own lots where Cook's Court and a ten foot alley are shown on 1722 map.
- 1658 John Blowers bought land from successors of Arthur Perry.
- 1676 Peter Sargent bought land for house fronting Marlborough Street from Thomas Milland.
- 1679 Peter Sargent builds manor house in Jacobean style.
- 1699 Peter Sargent rents house to Province for Governor Lord Bellamont for fourteen months. Sewall rents coachhouse and stable to the Governor.
- 1711 Great fire in October does not reach Province House.
- 1714 Peter Sargent dies.
- 1715 Alley laid out behind Sargent's house through the land of John Blowers, named "Governors Alley" [sic].
- 1716 Land and house sold to Provincial Government by Sargent's heirs. House adapted architecturally to appear more Georgian.
- 1720 Bonner map shows lane behind Province house.
- 1722 Samuel Clough's diagram shows houses on both sides of Cook's Court.
- 1728 Burgis map shows Cooks Court and Governors Alley (both unnamed?).

Kyle's citation of Suffolk Deeds implies Governors Alley was named Montgomery Street before being changed to Province Street.
- 1729 Governor William Burnet dies at Province House.
- 1733 Cooks Court named after Richard or Elisha Cook who owned the land where it was laid out.
- 1774 General Gage, the last Royal Governor, moved into Province House.
- 1776 After evacuation, US officers used Province House for public business.
- 1814 J. G. Hale's map shows "Governor's Alley".
- 1825 Montgomery Place opened from Tremont Street to Governor's Alley as a private street.

Possible construction date of steps at eastern end.
- 1833 Name of Governors Alley changed to Province Street, June 10.

- 1830's A huge double house with noble elms stood on the southeast side of Cook's Court.
- 1834 Province Street confirmed a public way, June 9. Cook's Court confirmed as a public street, September 15.
- 1841 Cook's Court renamed Chapman Place after Mayor of Boston, Jonathon Chapman.
- 1812 - Engraving of Third Latin school shows four story houses, with dormers
1844 on east side of Chapman's Place.
- 1830 - Province house used as a tavern and a minstrel hall.
1860
- 1846 Province House vane removed to house in Brookline.
- 1858 By this time, the character of Montgomery Place had changed from respectable houses to light trades and boarding houses. The old merchants were moving to Beacon Hill.
- 1864 Province House, a hotel at the time, burned leaving only walls and heavy timbers standing. It was repaired.
- 1861 Pinney Atlas shows fourstory houses along Montgomery Place, three and four story structures along Chapman Place (two run through to 25,23,21, and 19 Province Street) and a mixture of one and two story frame buildings at the north end of Province Street abutting the rear of brick buildings on School Street.
- 1867 Sanborn Atlas shows houses along Montgomery Place, three and four story brick buildings from 33 to 19 Province Street and a new five story brick hat and trunk factory at 18 to 5 Province Street. (The imprint of this building is still visible on the flank walls of the Waterman Building. [Today's Parker House Office Building] Its basement depth is unknown). A pair of one-story frame buildings are shown to the south of the hat factory at 17,15 Province Street. (The confused numbers are as shown in the Atlas).
- 1874 Beers Fire Insurance Atlas shows the hat factory as 11,9,7,5. It is flanked by a single building on the lot of 17,15,13 but heights and materials are not stated.
- 1876 Province House vane given to Mass. Historical Society.
- 1882 Chapman Place extended through to Montgomery Place (cutting No. 6, a house in half. The remaining portion run for some years as a restaurant.)
- 1883 Montgomery Place renamed Bosworth Street. The steps in symmetrical plan are shown on deed plan.

- ca 1890 Photo of Province Street shows steps symmetrical, gateway as today except lantern fixed directly to iron brace, street toward north lined with brick buildings, warehouses and dwellings and artisans' shops above storefronts.
- 1917 Bromley Atlas shows symmetrical steps; and four and five story brick structures along entire west side of Province Street.
- 1922 Bromley Atlas shows no change to site. Steps symmetrical on deed plan.
- Province House demolished by Robert R. McNutt Wrecking Company, Boston. (Extensive photo documentation Massachusetts Historic Society Library.)
- 1923 Legal Agreement to widen Province Street settled.
- 1923 Steps partially dismantled?
- 1924 Demolition photos from high level looking in both directions along Province Street shows four and five story buildings at north end of uncut development site. Steps are not shown. All demolished buildings reveal substantial basements.
- Text associated with the proposed ten story (Parker House Office Building) stated that the "low buildings occupied by shops of one sort or another, beyond the [Waterman] site on the right, will be displaced by other fine modern structures." The Post May 11, 1924
- ca 1925 Stair rotated for storage vault.
- 1930 Barbershop in vault beside rotated stair flight.
- 1934 Photo from Province Court shows six story brick commercial block and four story block to north. These are shown on Bromley Atlas map of 1922.
- 1957 Multi-story garage built at south end of site. Basement level varies between ten and sixteen feet to top of slab.
- 1982 Carlo Termeri drove car down steps from Bosworth Place to Province Street. Walls and steps rebuilt with time capsule containing newspaper clipping with account of the accident.

Bruner/Cott & Associates, Inc.
301 Vassar Street
Cambridge, Massachusetts 02139
617 492 8400

Architecture/Urban Design
Preservation/Space Planning

Bruner/Cott

Dr. Steve Pendry
City Archaeologist
Environmental Department
Room 805
Boston City Hall
Boston, MA 02201

RE: 45 Province Street
Archaeological Potential

Dear Mr. Pendry:

We have assembled the basic information that should be necessary for a professional archaeologist to produce a final report on this site. We have discussed the study's requirements and process with Don Jones at Boston University's Office for Public Archaeology, who we expect will produce this work.

The information we have already assembled includes the following: bore hole information at two ends of the site, including that area unaffected by the 1957 parking garage construction; a site survey showing utilities and noting their type, size and location; and a comprehensive search of deed plans, historic maps, atlases and photographic files at SPNEA and the Massachusetts Historical Society to determine the development pattern and construction type for each portion of the site from 1643 to the present.

On the basis of this research, we believe your own guess that the entire site has been disturbed by excavation for 19th and 20th century construction and utilities will be confirmed by the Office of Public Archaeology.

We will submit the archaeologists' final study report as an appendix to the EPIR and contact you for discussion.

Yours sincerely,

Henry Moss
Associate

3481C
HM/sp

SOURCES

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The Eighteen Fifties and the Boston Five Cents Savings Bank Being A Brief
Account of the School Street, The Province House and the Boston Five Cents
Savings Bank; Kyle, George H., 1926, Boston

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Massachusetts Historical Society Library Portfolios:

Press Clippings:

Volume M pp 90-91 Boston Sunday Globe August 16, 1908

Volume M p. 49 Boston Post May 11, 1924

Volume H Boston Globe December 25, 1927

Photo Archive Province Street
Province House
Province Court

History and Antiquities of Boston, the Capital of Massachusetts and Metropolis
of New England, From its Settlement in 1630, to the Year 1770; Drake,
Samuel A.M., Luther Stevens publisher, Boston, 1856

Boston; Lodge, Henry Cabot; Longmans, Green and Company; 1891; New York

Bulfinch's Boston; Kirker, Harold and James; Oxford University Press; 1964;
New York

Old Boston Days and Ways; Crawford, Mary Caroline, Little Brown and Company,
1909, Boston

The Crooked and Narrow Streets of the Town of Boston 1630-1882; Thwing, Annie
Haren; Marshal Jones; 1920

Sanborn Atlas; Sanborn Map Company; Pelham, NY, Volume I , 1867

Bromley Atlas;

Boston Volume I 1917

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Plan of the City of Boston; Surveyed and drawn by C. Pinney, C.E. 1861

Beers Fire Insurance District Atlas; 1874; F.W. Beers and Company, NY

SPNEA Photo Archive

Registry of Deeds

Plan 1880

Plan 1883

Plan 1923

Infrastructure Systems Component

A detailed utility survey has been prepared and has been included in the section containing the architectural drawings. Existing utilities in Province Street, Bosworth Street and Chapman Place will require relocation. These utilities service the local buildings and are not major utility conduits servicing larger sections of the city. Preliminary discussions with utility company representatives indicate that Option A can be accomplished with minimal disruption of services occurring only during the switchover period.

Comprehensive discussions and planning with the individual utility companies have been underway and will continue through the

Areas of the sidewalks, the Province House steps and paved areas labeled "limits of construction" in the Construction Impact Section will need to be replaced in conformity to plans to be worked out with the department of public works and the Public Improvements Commission.

In response to comments in the adequacy determination the following material presents a more comprehensive infrastructure impact analysis.

45 Province Street, Boston
Infrastructure Impact Analysis

INGRESS STREET
STON
SSACHUSETTS
10.1216
617 426 0110
617 426 7353

I. Description of the Project

The project involves demolition of the existing parking garage and construction of a twelve story office building and penthouse and a seven level parking garage below grade. The garage will be constructed using a slurry wall extending from three feet outside the Parker House foundation wall on Chapman Place to 6' east of the curb line on the west side of Province Street.

Area utilities must be kept in service during construction. Where possible utilities will be reconstructed at locations and elevations compatible with both temporary and permanent services.

II. Proposed Project Utility Consumption

The utility consumption described in this section is based upon the following proposed building program.

Office space	148,289 sf
Retail	6,472 sf
Restaurant	5,382 sf
Day care	4,000 sf
Garage gross area	142,775 sf (440 spaces)

Sewage Flow

Sewage flow projections are based on Massachusetts DEQE Title 5 criteria as follows:

Office space	148,289 sf @ 75 gpd/1000 sf	=	11,175 gpd*
Retail	8,000 sf @ 5 gpd/100 sf	=	400 gpd
Restaurant	200 seats @ 35 gpd/seat	=	7,000 gpd
Daycare assume	80 occupants @ 15 gpd/person	=	1,200 gpd
Garage	440 spaces @ 5 gpd	=	2,200 gpd
			21,975 gpd
	Maximum Day Design Flow	say	22,000 gpd
	Peak Daily Flow		66,000 gpd
			or 0.10cfs**

* Gallons per day

** Cu.ft/sec

Water Consumption

Water consumption is assumed to be 110 percent of sewage flow or 25,300 gpd, plus 2,000 gpd for cooling tower evaporation make up water or total maximum day water consumption is estimated to be 27,300 gpd.

Gas Consumption

Gas appliances are planned for the restaurant kitchen. Service requirements are projected to be approximately 1.25×10^6 BTU/hour.

Electricity Consumption

General non-heating electric loads are estimated to be 1165 kVa, single phase and 1311 kVa three phase. The AC/electric heating loading is estimated to be 750 kVa.

III. Proposed Improvements

The proposed project's utility consumption will be compatible with existing infrastructure in the area. Preliminary utility tie-in points are shown on Figure 2. Multiple sewer and water tie-in points minimize the impact on any single street utility. Loads will be dispersed to utilities in Province and Bosworth Streets and in Chapman Place.

The following relocations are proposed:

Sewer and Drains

Construct a drain connecting the existing catchbasin on Bosworth Street opposite Chapman Place to the combined sewer on Province Street. Construct a sewer on Bosworth Street from Chapman Place to the combined sewer on Province Street.

Connect the Parker House annex sewers and drains to the proposed sewer and drain on Bosworth Street.

Abandon the 12 inch combined sewer in Chapman Place from Bosworth Street to the limit of the proposed project.

Preliminary design of the proposed project requires four six inch sewer connections along Province Street, one - six inch sewer connection to Chapman Place near the Parker House office building and two - twelve inch drain connections to Province Street.

Construct replacement sewers, drains and manholes in Province Street connecting to the existing combined sewers off site.

Water

Connect the existing 12 inch main in Bosworth Street to the existing 12 inch main in Province Street.

Connect water services in the Parker House annex to the 12 inch main on Bosworth Street.

Abandon the 8 inch main in Chapman Place from Bosworth Street to the limit of the proposed project.

Support the 12 inch main in Province Street on piling during construction, then permanently install either the existing or a replacement main under the street and above the garage top slab.

If required by the Boston Water and Sewer Commission (BWSC) replace the existing main in Chapman Place connecting Bosworth Street with the remaining main in Chapman Place or alternatively add an additional main from the proposed building to School Street.

Gas

Boston Gas is analyzing the distribution system to determine if a length of the six inch gas main in Chapman Place can be abandoned.

We propose the following:

Replace the existing eight inch cast iron gas main in Province Street with a welded steel main in the area affected by the excavation. This main would be placed in a permanent location if possible. The main would then be supported as required during excavation for and construction of the garage.

If required by Boston Gas, connect the six inch steel main in Bosworth Street with the proposed eight inch steel main in Province Street.

If required by the Parker House connect the Parker House annex gas connections (2 - 4 inch connections) to the existing main in Bosworth Street.

If required by Boston Gas, replace the six inch main in Chapman Place with a larger diameter main between School Street and the Parker House gas connections.

Electric

Construct new electric conduit in Bosworth and Province Streets if possible in a permanent location inside the excavated area. These conduits would be temporarily supported during construction.

Telephone

Construct new telephone conduit in Province and Bosworth Streets if possible in a permanent location inside the excavated area. These conduits would be temporarily supported during construction.

Steam

There is no steam infrastructure at the site.

Cable TV

There is no cable infrastructure at the site.

IV. Impact on Existing Utilities

Sewers

The existing combined sewers in Province Street are 16 x 24 inches and 24 x 27 inches. The capacity of these sewers greatly exceeds the total design peak flow of 0.09 cfs. Furthermore, sewage flow is dispersed between the two independent combined sewers on Province Street and the sewer on Chapman Place. Therefore, sewage flow from the proposed project will not adversely impact the existing sewers. No flow mitigation is required.

The BWSC has informed the project proponent that a sewage holding tank is not required because of recent completion of the East Side Interceptor. Because of the completion of this interceptor, the project is not expected to have any impact on Boston Harbor water quality.

Water

The project site is served by a 12 inch main in Bosworth Street, by an 8 inch main in Chapman Place and by a 12 inch main in Province Street. The capacity of these mains greatly exceeds project water consumption.

The project proponent plans to connect the dead end of the 12 inch main on Bosworth Street to the existing 12 inch main on Province Street. This will complete a loop. With this loop completed, it is proposed to abandon the eight inch water main on Chapman Place between Bosworth Street and the limit of the project. Parker House annex water service would be directly connected to the twelve inch main in Bosworth Street, using internal connections.

Gas

The project site is served by a 6 inch main on Bosworth Street, and Chapman Place and by an 8 inch main in Province Street. There is sufficient gas supply in the area for the minimal gas demand of the project.

The project proponent plans to abandon the 6 inch main in Chapman Place between Bosworth Street and the limit of the project. If required by Boston Gas, the proponent will tie the 6 inch gas line in Bosworth Street to the 8 inch line in Province Street and will increase the capacity of the service in Chapman Place from School Street.

Electric

There is sufficient electric capacity in the area to service the project. The existing electric duct in Province Street will be replaced in a location compatible with the proposed slurry wall. An electric duct will be constructed from Province Street up Bosworth Street to the proposed transformer vault at the corner of Bosworth Street and Chapman Place.

V. Mitigation Measures

All utilities will be maintained in service during construction. Adjacent users will have interruption of service only as necessary during tie-in of new services. Tie-ins will be done during off-hour, low demand periods.

The project will require internal modifications to Parker House utilities. These modifications will be undertaken with the agreement of the Parker House.

Mitigation measures to minimize disruption of vehicular and pedestrian circulation and use of the public ways are described elsewhere.

VI. Consultation with Utilities

The following utilities have been consulted by Shooshanian Engineering Associates:

Boston Gas: A meeting was held with Boston Gas personnel on 21 April to discuss gas main relocation.

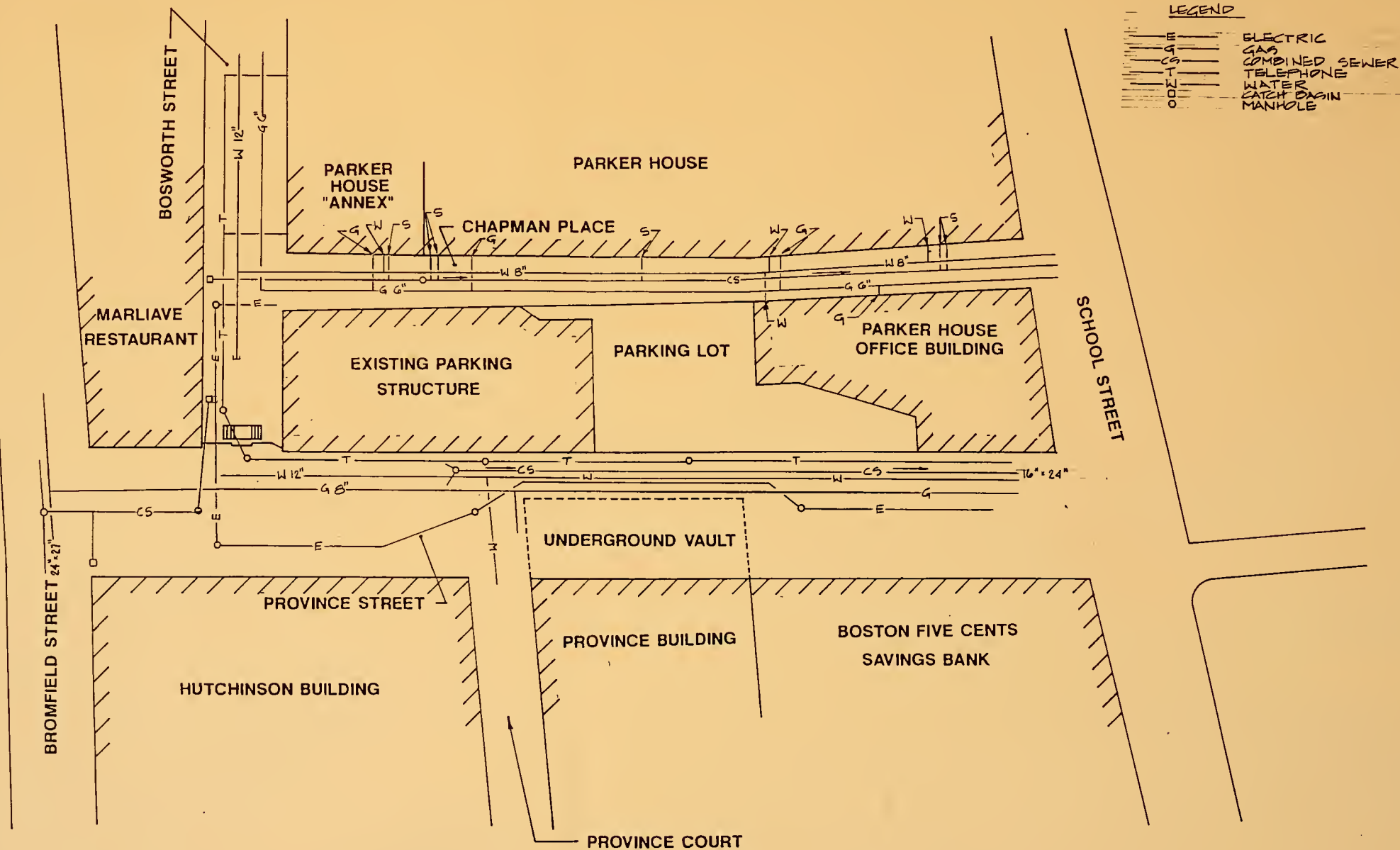
NYNEX: A meeting was held with NYNEX personnel on 18 April 1989 to discuss telephone service relocation.

Boston Water and Sewer Commission (BWSC): A request for review of the proposed water and sewer utility systems described in this memorandum will be forwarded to the BWSC for review and comment. Previously a waiver for construction of a sewage holding tank was applied for by the proponent. BWSC responded by letter stating that "it is not anticipated that a holding tank will be required for this project".

Boston Edison (BECO): Preliminary loads were discussed with Boston Edison on October 4, 1988. Electric utility relocation was discussed with BECO in a meeting on 19 April 1989.

Boston Thermal: Boston Thermal has submitted a proposal to The Abbey Group.

Parker House: Relocation of internal Parker House utilities was reviewed with the hotel's director of engineering and his staff on 19 April 1989.



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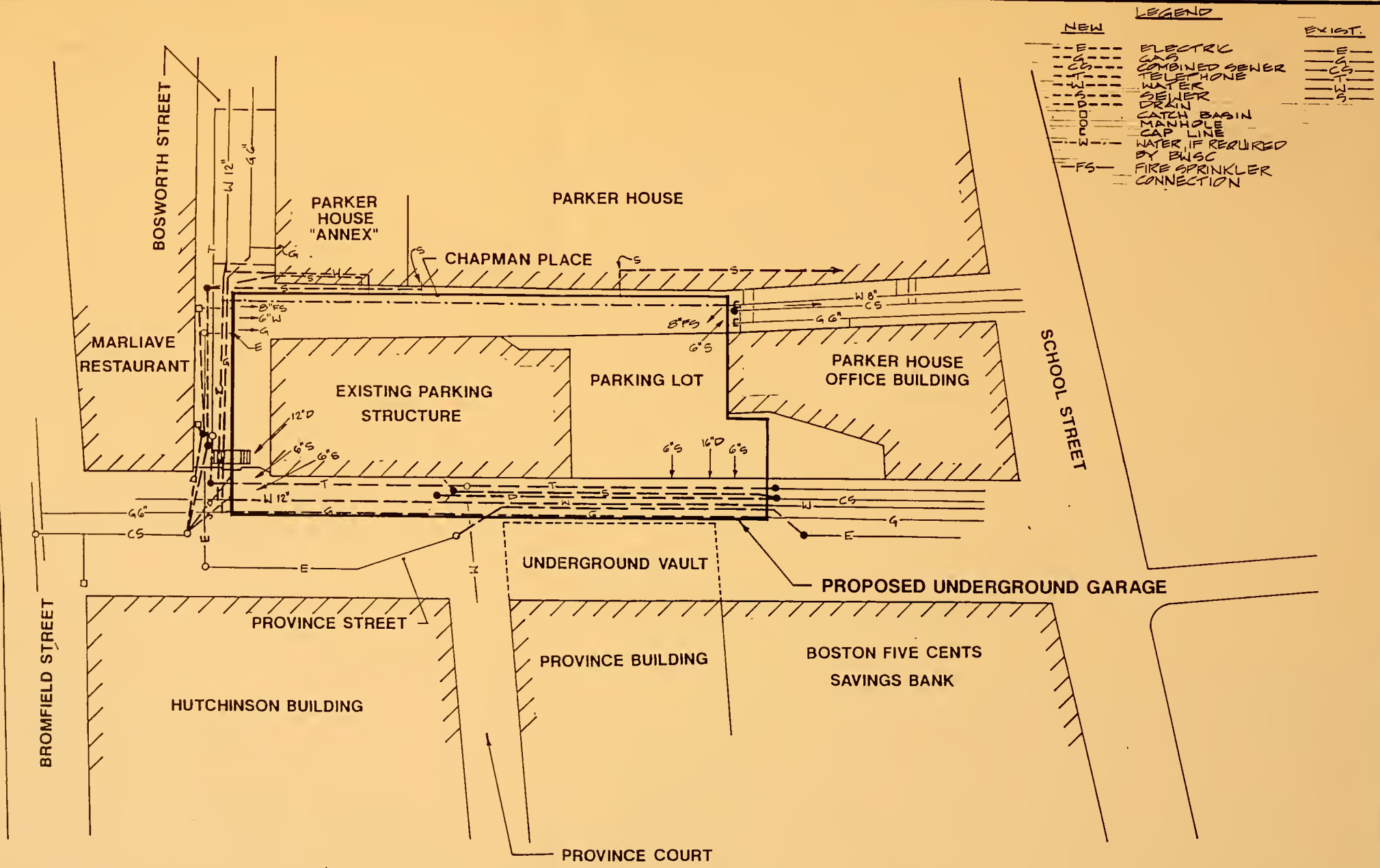
Shooshanian Engineering Associates
330 Congress Street
Boston, Massachusetts 02210

45 PROVINCE STREET EXISTING UTILITIES



DRAWN :
SCALE : N.T.S.
DATE : 4/89

FIG.
1



NEW	LEGEND	EXIST.
—E—	ELECTRIC	—E—
—G—	GAS	—G—
—CS—	COMBINED SEWER	—CS—
—T—	TELEPHONE	—T—
—W—	WATER	—W—
—S—	SEWER	—S—
—D—	DRAIN	—D—
—CB—	CATCH BASIN	—CB—
—MH—	MANHOLE	—MH—
—CL—	CAP LINE	—CL—
—WTR—	WATER, IF REQUIRED BY BWSC	—WTR—
—FS—	FIRE SPRINKLER CONNECTION	—FS—

SHOOSHANIAN
 Shooshanian Engineering Associates
 330 Congress Street
 Boston, Massachusetts 02210

45 PROVINCE STREET PROPOSED UTILITIES



DRAWN :
 SCALE : NTS
 DATE : 4/89

FIG.
2



Shooshanian
Engineering
Associates
Incorporated

3 November 1988

Mr. David Epstein
Senior Vice-President
The Abby Group
575 Boylston Street
Boston, MA 02116

Re: No. 45 Province Street
Underground Utility Services Relocation

Dear Mr. Epstein:

Shooshanian Engineering Associates, (SEA) has reviewed all available documents concerning the underground utility services for the 45 Province Street, Boston, Massachusetts Project site and has developed the following plan.

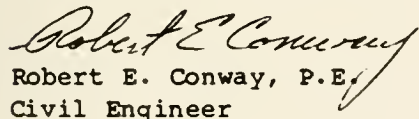
Disruption of utility services to adjacent properties will be minimized. SEA envisions that utility services which need to be located, will be installed, tested and operational before building services are connected in order to minimize "down time". Utilities which are to remain in-place, will be carefully excavated, properly supported and protected during construction in order to provide continued service.

SEA plans to work very closely with all private utility companies to coordinate the engineering, scheduling and reconstruction of their services.

In conclusion, SEA's objective is to complete this project with minimized disruption to the utility services and traffic in the safest manner possible to all concerned.

Very truly yours,

SHOOSHANIAN ENGINEERING ASSOCIATES, INC.


Robert E. Conway, P.E.
Civil Engineer

REC/cw

cc: Ms. Lynne Brooks, Burner/Cott
Mr. A. Abboud
Mr. John Palmer

Office File

Reviewed by: 

CBD
A124
1989

NO. 45 PROVINCE STREET
BOSTON, MASSACHUSETTS (FPIR)

TITLE

DATE
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